ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

MORE POWER for GEORGIA

The Georgia Power Company operates 8 steam-electric generating plants, 22 hydro-electric plants, and 1 oil engine plant, with a combined capacity of almost one million Kw.

HORTON PENSTOCK installed at Bartlett's Ferry for Georgia Power Company

GEORGIA POWER COMPANY recently increased the generating capacity of its Bartlett's Ferry hydroelectric plant to 65,000 kilowatts. This marks the third expansion in twenty-five years at the Chattahoochee River dam site and reflects the constant and growing demands for electric power in the South.

The Horton welded steel penstock shown below plays an important part in the expansion program at Bartlett's Ferry by supplying water to a newly installed turbine. It is typical of the heavy steel plate work Chicago Bridge & Iron Company is equipped to fabricate and erect for industry. Our shops do welding, X-raying, and stress relieving to code requirements. Write our nearest office for estimates or quotations when you need tanks or steel plate work. There is no obligation on your part.

CHICAGO BRIDGE & IRON COMPANY

Atlanta, 3	2125 Healey Building	Detroit, 26	1506 Lafayette Building
Birmingham, 1	1520 North 50th Street	Havana	402 Abreu Building
Boston, 10	1012—201 Devonshire Street	Houston, 2	2109 C & I Life Building
Chicago, 4	2101 McCormack Building	Los Angeles, 17	1511 General Petroleum Building
Cleveland, 15	201 Guildhall Building	New York, 6	3311—165 Broadway Building
Philadelphia, 3	1623—1700 Walnut St., Building		
San Francisco, 4	1530—200 Bush Street		
Seattle, 1	1312 Henry Building		
Tulsa, 3	1617 Hunt Building		
Washington 6, D. C.	1152 Cafritz Building		

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.

In Canada: HORTON STEEL WORKS, Limited, FORT ERIE, Ont.

NEW!
THE TR 200
REAR DUMP
MOTOR WAGON

TR 200 MOTOR WAGON
SPECIFICATIONS

Here's your NEW LaPLANT-CHOATE ROCK WAGON

HERE'S a new addition to the well-known LaPlant-Choate line of Motor Wagons and Earthmovers. The 18-ton TR 200 is a hydraulically-controlled rear dump wagon flexibly joined to the same big rubber-tired tractor so successfully used on the LaPlant-Choate TS 200 Motor Scraper. It combines rugged power, big capacity and high speed with a host of other features to make this unit outstanding in its field.

FEATURES YOU'VE BEEN LOOKING FOR IN A REAR DUMP WAGON

Stable wheel base assures absolute safety when dumping over edge.

Rock Lug tires.

Protected cab.

Your choice of two diesel engines in the T 200 Tractor . . . a 176 HP Buda or a 165 HP Cummins.

No obstructions in the wagon body.

Tilts to 70° from horizontal.

Full hydraulic control.

Rear dump advantages.

Available with heated body for use in cold climate to prevent freezing of material in load.

GENERAL

CAPACITY	
Struck, cu. yds.	11
Heaped, cu. yds.	15
Tons	18
OVERALL DIMENSIONS	
Length	25'9"
Width	10'7"
Height	10'0"
WHEEL BASE	13'7"
WHEEL TREAD	
Tractor	6'8"
Wagon	8'8"
TIRES	4—21.00 x 25—24 ply rock lug
BRAKES	
4-wheel air Timken-Detroit	18" x 7"
TURNING	
Width required 180° turn	31'3"
Degree of turn each way	60°
HYDRAULIC SYSTEM	LPC Fluid Power Unit
Steering—25 GPM	Model HU25
Wagon operation—40 GPM	Model HU40
SHIPPING WEIGHT	
(Approx. in lbs.)	40,000

T 200 TRACTOR

ENGINE	
Buda Diesel Model 6-DA-779	176 HP
or	
Cummins Diesel Model HRB-600	165 HP
ENGINE CLUTCH	17" Lipe Rollway
TRANSMISSION	Fuller 5A1120
SPEEDS	
(at 1800 RPM—MPH)	From 2.46 to 21.63
STARTING METHOD	Electric 24 V
AIR COMPRESSOR	
Bendix-Westinghouse	7¼ cu. ft. capacity
ELECTRIC SYSTEM	12 V
FUEL TANK CAPACITY—U. S. gallons	70

R 200 WAGON

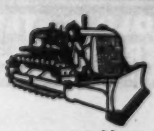
MISCELLANEOUS DIMENSIONS	
Loading height, rear	5'6"
Loading height, side	8'3"
Bowl width	8'0"
Bowl depth, maximum	4'8"
Bowl length	11'3"
OPERATING METHOD	
Type of ejection	Rear dump, hyd. lift
Number of jacks (double acting)	2
Size of jacks	8" x 31"
DUMPING ANGLE	70°

LAPLANT CHOATE

MANUFACTURING CO., INC. CEDAR RAPIDS, IOWA, U. S. A.

Cable-operated Scrapers in 6-, 8- and 14-yd. sizes for all makes of track-type tractors.

3- and 4-yd. Scrapers for track-type and rubber-tired industrial tractors.



Hydraulic and Cable-operated Dozers.

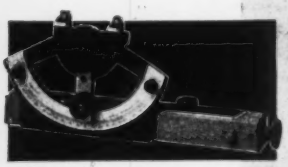
LEUPOLD LEVELS

for CONVENIENCE and ACCURACY...

Performance tells...and since 1907 precision-engineered LEUPOLD instruments have been used the world over. When you use LEUPOLD Levels you are assured of the greatest accuracy modern research and manufacturing can produce — plus time-saving convenience and versatility which no similar products can give.

LEUPOLD HAND LEVEL

Accuracy and convenience in a small package! This practical, easy-to-use Level measures 5¼ inches overall length with ¾ inch outside diameter. Exclusive LEUPOLD bubble magnifier adjusts internally to the user's eye, eliminating constant refocusing. Sealed against dust and moisture. Furnished in handsome saddle leather case. **$11.70**



LEUPOLD ABNEY LEVEL

Exclusive patented design permits changing scales without removing and reversing the frame. Thumb screws hold all scales in milled slide, and any scale can be quickly superimposed on others for immediate use.

Bubble magnifier adjusts internally to the user's eye, eliminating the need to refocus every time the Level is removed from its case. Thumb nut index arm adjustment provides micrometer accuracy. Radius of arc, 1¾ inches. Overall length, 6½ inches. Furnished in heavy leather case with belt loop. *Four scales available per cent, topographic, degrees or chainage corrections.*

MODEL A (Choice of any 2 scales) **$27.50**
MODEL B (Choice of any 3 scales) **$30.00**

MAIL THIS COUPON TODAY

Enclosed is ☐ check or ☐ money order for $_____
Please send the LEUPOLD Level checked below.
_____ The HAND LEVEL @ $11.70.
_____ The ABNEY Model A @ $27.50.
_____ Model B @ $30.00. (List choice of scales.)
Send literature on ☐ LEVELS ☐ COMPASSES.
NAME_____
ADDRESS_____
CITY_____ ZONE___ STATE_____

LEUPOLD & STEVENS INSTRUMENTS, INC.
PORTLAND 13, OREGON

ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 148 — MARCH 6, 1952 — No. 10

WALDO G. BOWMAN
Editor

FEATURES IN THIS ISSUE

Underground garage walls built last 30

Contractor liked this design 32

Getting more road funds 34

Tough industrial disposal problem solved 39

Sitting ducks along the Rio Grande ..... E. R. Harrington 43

Perspective—Dam sought for Cumberland 144

DEPARTMENTS

Reader Comment	14	Men and Jobs	83
Scoreboard	17	Obituaries	88
Editorials	19	Material Prices	91
Construction Week	21	Meetings	98
News of the Week	23	Financial	103
Legal Decisions	40	Labor	105
International	50	Construction Business	107
Municipal	74	Construction Reports	108

New Products 135

Number of copies of this issue printed, 51,615

Managing Editor—Eugene E. Halmos, Jr.

Associate Editors—*New York*, V. T. Boughton (senior associate), J. M. Connolly, R. H. Dodds, F. S. Merritt, Arthur J. Fox, Jr., Ken Maxcy; *Chicago*, J. R. Carr; *San Francisco*, L. L. Wise; *Washington*, V. B. Smith.

Assistant Editors—*New York*, Clyde Henning; T. D. MacGregor.

Staff Assistants—Mary Kiernan, *Research*; Ethel Lyon, Henry G. Compton, *Makeup*; Leo Tarpy, *Printing*; Madalene Smith, Edward McLain, *Editorial*.

Business News—Elsie Eaves, *Manager*; J. A. Mahoney, M. Wetzel, *Reports*; J. H. Webber, M. W. Roessler, E. M. Huber, *Statistics*.

Contributing Editor—N. A. Bowers.

Domestic News Bureaus—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. Correspondents in 71 cities in the United States, Canada and Mexico.

Foreign News Bureaus—London, Frankfurt, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City. *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT F. BOGER
Publisher

March 6, 1952 — ENGINEERING NEWS-RECORD — Vol. 148—No. 10

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

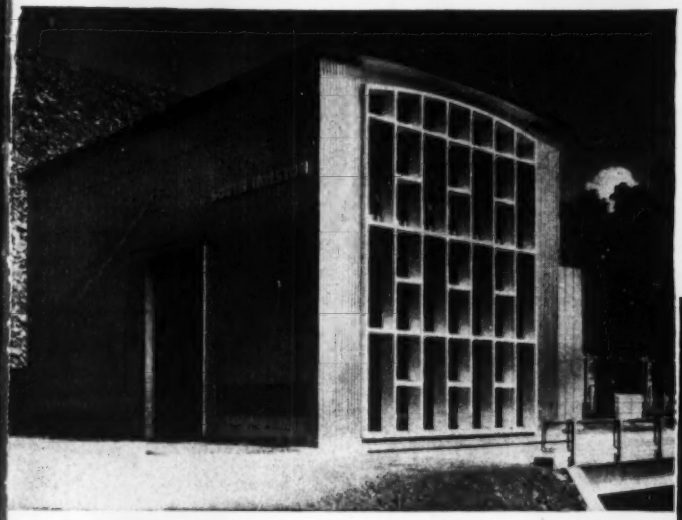
Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 N. Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow ten days for change of address.

Please indicate position and company connection on all subscription orders.

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Pan American countries, $15.00 a year; $22.00 for two years; $30.00 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A.

Copyright 1952 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.



Two views of the South Holston Dam Powerhouse, Bristol, Tenn. Designed by Tennessee Valley Authority, Design Department. Built by T.V.A. Construction Dept.

ROBERTSON Q-PANELS set Design Standard for Modern Power Plants

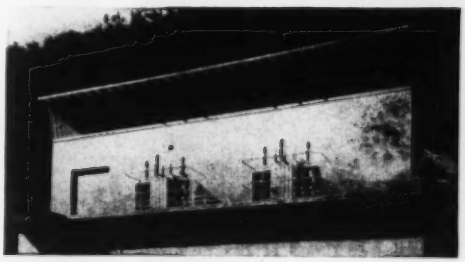
Good design originates in the designer's attitude, no matter what the material. But the simplicity of Q-Panel construction promotes logical straightforward design thought.

The T.V.A. Design Staff has used Q-Panels with such skill, and such understanding of simple lines, that the integrity and beauty of their Q-Panel buildings arouse admiration from laymen and professionals alike. The power stations shown use fluted aluminum outside and flat steel inside. The pictures are their own best testimony for the cleanness of line and pleasing proportions.

Q-Panels go up fast—50 sq. ft. in 9 minutes. A small crew quickly attaches the panels to the steel framework—much more quickly than little blocks can be piled up. Q-Panels are insulated metal sandwiches, only 3" thick but with insulation value greater than a 12" masonry wall. They are offered in a variety of maintenance-free exteriors, depending upon availability of materials at time of ordering.

The great number of Q-Panel electric power stations, from coast to coast and in many other countries, now under construction witness to the superiority of this wall material for power plants. Q-Panels fill the bill so well, they are rapidly becoming the typical traditional material.

WRITE FOR Q-PANEL CATALOG



Watauga Dam Powerhouse Elizabethton, Tenn. Designed by T.V.A. Design Dept. Built by T.V.A. Construction Dept.

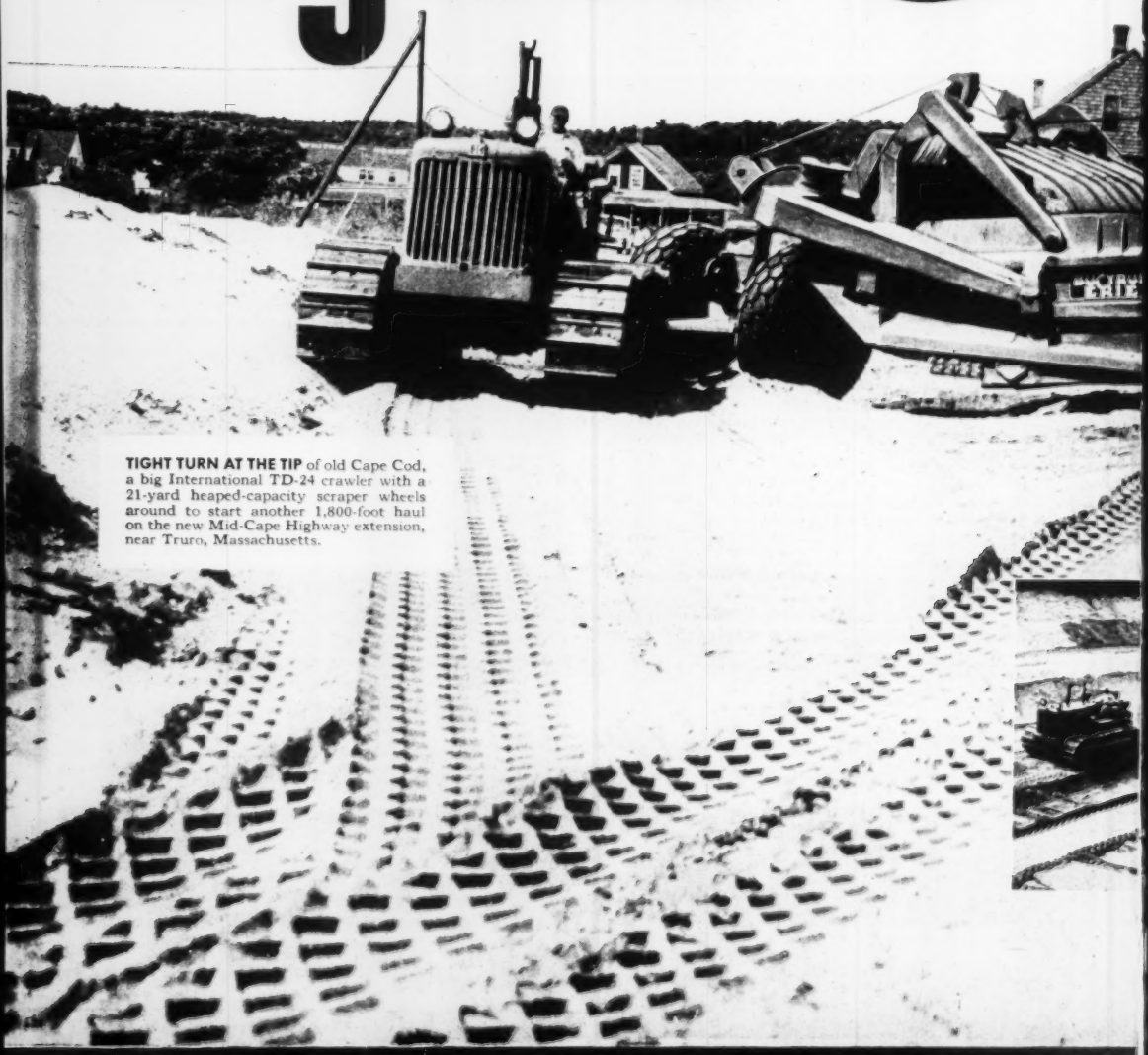
H. H. ROBERTSON CO.

2420 Farmers Bank Building
Pittsburgh 22, Pennsylvania

Offices in ALL Principal Cities in the U. S. A. and Canada

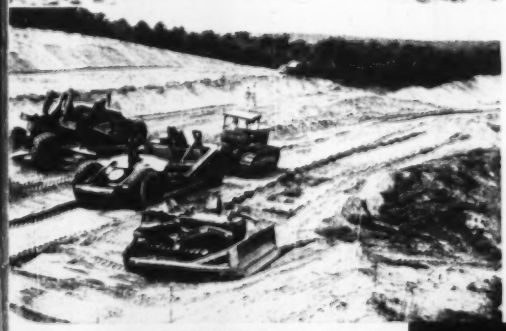
World-Wide Building Service

Big Red TD 24



TIGHT TURN AT THE TIP of old Cape Cod, a big International TD-24 crawler with a 21-yard heaped-capacity scraper wheels around to start another 1,800-foot haul on the new Mid-Cape Highway extension, near Truro, Massachusetts.

takes the Cape



BIG RED EQUIPMENT. Here are three of the five Internationals on this job, dozing and hauling the loose, shifting Cape Cod sand. In some bogs, peat has to be replaced with sand, and 50-foot piles driven in for stability of the roadway.

Makes tracks near Truro on sand-slowed highway job

Out near the tip of Cape Cod, where the Pilgrims saw their first tracks of redskins in the sand, today's tourists see the tracks of big red Internationals.

They're extending the Mid-Cape Highway, and where the land isn't sand, it's bog and marsh. It's so bad the S & M Construction Company, of Providence, R. I., won't let many of its vehicles venture off the pavement. But the Internationals charge ahead, moving nearly half-a-million cubic yards of sand to build three miles of road.

Pride of the whole show is "Big Red"—the TD-24—pulling bigger loads faster than any other crawler can.

And here's what an S & M operator says about it: "I wasn't on this rig very long before I found out it was mighty nice to handle. I really pull plenty of dirt!"

"Big Red", with 148 maximum drawbar horsepower and up to 7.8 mph, has more power and speed than any other crawler on the market. And it has finger-tip maneuverability to make pivot turns, feathered turns, and turns with power on both tracks.

All this means a faster work-cycle and more paydirt moved per day.

Ask your International Industrial Distributor for details on the TD-24. Ask him, too, about his fast, ready service and speedy parts delivery. Get all the answers . . . and you'll be a TD-24 man from then on in!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILL.

INTERNATIONAL

POWER THAT PAYS

INTERNATIONAL HARVESTER

Construction with Permalite lightweight aggregates

requires less steel...

saves time and manpower

Permalite lightweight aggregates can cut dead-load by as much as 80%!

● Today critical steel shortages create an urgent need for lightweight building design. Now, dead-load to live-load ratio can be reduced from 7 to 1 to less than 2 to 1. Much of this saving can be in structural steel. How? By using Permalite aggregates in floors, walls and roof.

Furthermore, concrete and plaster made with Permalite instead of sand are easy to handle – *quick to apply*. Rigid completion dates can be set and met!

Permalite aggregate in concrete is an efficient lightweight, insulating floor and roof fill material. In plaster it permits the fireproofing of structural steel without costly imbedding in heavy concrete. On walls and ceilings it assures lighter, more resilient base coats.

Get the full story on why architects are specifying Permalite for *all types of construction*–industrial buildings, schools, hospitals, defense housing and military buildings.

TYPICAL USES:

Concrete Aggregate: *Roofs and Floors* – over lightweight decking. *Exterior Walls* – thin, light; easily formed and erected. Can be monolithically poured or precast into blocks, slabs and panels – can be sawed or nailed!

Plaster Aggregate: *Fireproofing* – speedily applied over structural steel. *Interior Walls* – replaces sand in plaster – at less than half the weight.

Permalite
THE LEADING PERLITE AGGREGATE

A Building Product of Great Lakes Carbon Corporation and its Exclusive Permalite Licensees

Great Lakes Carbon Corporation, Dept. 16-3
18 East 48th Street, New York 17, N. Y.

☐ Please send full information on Permalite lightweight construction. ☐ Please have representative call.

NAME_____

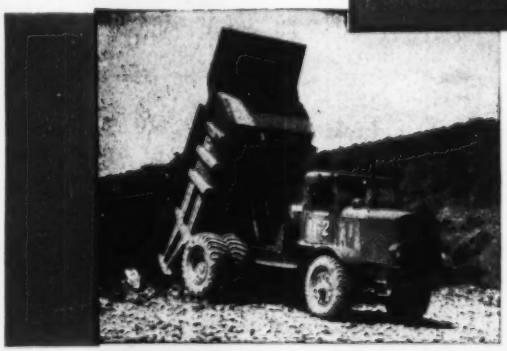
ADDRESS_____

CITY_____ STATE_____

You save more with "EUCS"

(Above) Model TD Rear-Dump Euclid. 22 ton capacity . . . 14.8 cu. yds. struck . . . loaded top speed 32.4 m.p.h. . . . powered by 286 or 300 h.p. diesel engine.

(Below) Double-acting twin hoists and entire hydraulic system are of Euclid design and manufacture. Action is fast and positive enabling operator to control body position at all times.



REAR-DUMP EUCLIDS are engineered and built for lasting strength. Their ability to stay on the job, day after day and year after year, means more tons moved at lower cost . . . "plus" performance for owners.

"Euc" bodies have extra thick plates reinforced with heavy box section side and bottom supports. The rugged frames are built to withstand the impacts of hauling and dumping big loads . . . they're built to take the pounding and wear of loading earth, rock and other heavy excavation by large shovels and draglines.

Rear-Dump "Eucs" have many other "plus" features that make them standard equipment in mines, quarries and on construction work. For example, they have large capacity, ample power and traction for steep grades . . . speed on the haul road and full-floating, double reduction planetary type Euclid axle.

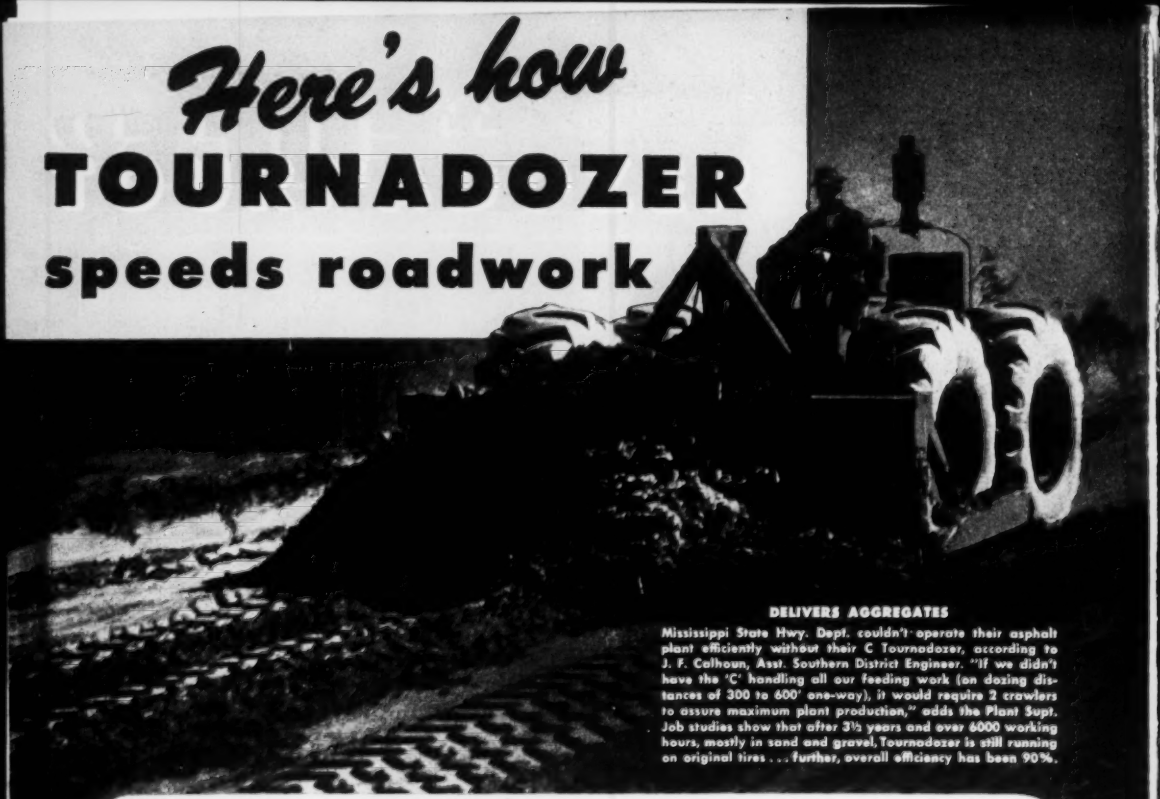
For information on equipment that is job proved on work similar to yours, get in touch with your Euclid Distributor or write direct for literature on the complete line of Euclid models.

The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO

CABLE ADDRESS: YUKLID CODE: BENTLEY

EUCLIDS

Here's how
TOURNADOZER
speeds roadwork



DELIVERS AGGREGATES

Mississippi State Hwy. Dept. couldn't operate their asphalt plant efficiently without their C Tournadozer, according to J. F. Calhoun, Asst. Southern District Engineer. "If we didn't have the 'C' handling all our feeding work (on dozing distances of 300 to 600' one-way), it would require 2 crawlers to assure maximum plant production," adds the Plant Supt. Job studies show that after 3½ years and over 6000 working hours, mostly in sand and gravel, Tournadozer is still running on original tires . . . further, overall efficiency has been 90%.

Big rubber tires . . . 19 m.p.h. speed give you a roadwork combination that's ready for *action* anywhere . . . anytime. Whether assigned to production dirtmoving, maintenance, or emergency pulling, pushing or dozing assignments, Tournadozer can be dispatched at a moment's notice over highway or cross country to handle scattered jobs. It goes right to work . . . in any kind of weather . . . through mud, sand, or snow. This high-speed, rubber-tired flexibility, with no crawler tracks to maintain or replace, gives you the most effective, economical equipment for use in both your construction and maintenance operations.

With either its standard bulldozer blade, interchangeable Angledozer, or V-type Snow Plow, plus its ability to pull a Rooter, Sheepsfoot Roller, or Carryall Scraper, you get benefits all year on your original investment. It has fast, 4-wheel drive, constant-mesh transmission for instant gear change without loss of momentum, 4-wheel disc air brakes with 2822 sq. in. braking area, and fast, easy electric control. Optional torque converter is available.

Check these actual job performance reports on jobs like yours, then contact your LeTourneau Distributor for all the facts . . . there's no obligation.

LeTOURNEAU LET EQUIPMENT

R. G. LeTOURNEAU, INC., Peoria, Illinois

HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

Also **TRACTOR EQUIPMENT** *shown opposite . . .*

BACKFILLS, LEVELS, MAINTAINS DUMPS

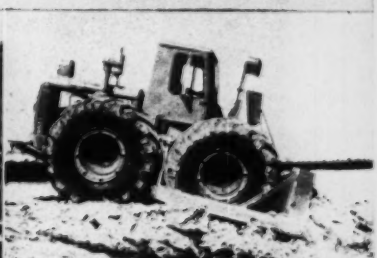
To backfill 2¼ miles of 42" and 54" roadside water mains for Detroit Dept. of Water Supply, Sugden & Sivier, Inc., Tournadozer dozed 19,500 yds. into 10' and 11' trenches. Rig moved 200 lineal ft. daily, cutting clean-up cost by other methods 50%, according to G. L. Sivier, Vice Pres. . . . also leveled 450,000 yds. of sand, clay, maintained 270,000-yd. expressway construction dump.

MAKES EMERGENCY ROAD REPAIRS

To clear heavy mountain-top landslide from a main highway near Viota, Colombia, Zona de Bogota drove their rubber-tired C Tournadozer over 103 miles through heavy traffic in 7½ hrs. Rig moved 4000 yds. of rock and wet earth and had road opened to traffic in only 13 hours. Mobile, one-man Tournadozer saved many additional hours traffic delay and use of large crews of hand labor.

PUSH-LOADS SCRAPERS

C Tournadozer with 4 C Tournapulls were used to build a 450,000-yd. swamp fill for new Washington-Annapolis expressway by Nello L. Teer Co. of Durham, N. C. Tournadozer push-loaded 12 pay yards of silt-sand into each Tournapull in 15 to 30 sec. Rig also push-loaded crawler-scrapers on a second cut 1½ mi. away . . . shuttling back and forth between the cuts several times a day.



PIONEERS ROADWAY

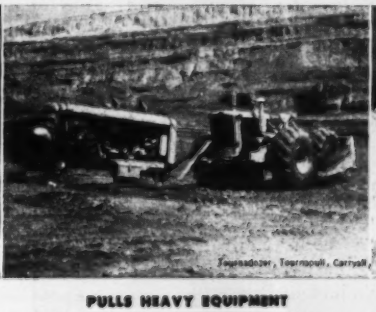
Working on rough terrain in 105° F. temperatures, modern Tournadozer set a fast construction pace pioneering a new highway across remote desert country of Baja California. This Mexican Federal Govt. project called for movement of 190,000 cu. yds. material per month. Low-pressure tires, air-foam cushion seat, fingertip control, reduce operator fatigue, increase safety when working heavy schedules.

STRIPS BLACKTOP

Before resurfacing U. S. 112 for Michigan State Hwy. Dept., Ann Arbor Construction Co. used a C Tournadozer to strip 2 mi. of 2 to 4" of blacktop from the 20" concrete roadbed. Despite continuous traffic, Tournadozer averaged 480 lineal ft. per day — while the most a backhoe with grader blade could clear was 100' a day. Tournadozer cost averaged 47c per sq. yd. for entire job.

CLEARS, GRADES LAND

C Tournadozer clears trees, underbrush . . . trims side slopes . . . and assists four C Tournapulls building 50 earthfill irrigation dams for Cuban firm, Cia. Azucarera Vertientes. As each dam is finished, the mobile LeTourneau rigs move under their own power to next site miles away. They originally drove over highway 351 miles from Havana to Cespedes in only 22 hours. (avg. 16 m.p.h.).



Tournadozer, Tournapull, Carryall, Angledozer, Bowl-Mobile—Trademarks Reg. U. S. Pat. Off. C149c

MATERIALS HANDLING

Here, "C", working on concrete floor, stockpiles bulk nitrate at Iquique, Chile warehouse. 606 tons hourly are fed to dock conveyor system for delivery to ships. Unit can service a number of roadside pits or maintenance stockpiles . . . speeding between jobs at 19 m.p.h. without delay for trailer loading, unloading. Big, soft-cushion tires cross curbs, railroad tracks, travel any road surface.

PULLS HEAVY EQUIPMENT

Skidding heavy compressor is one of many maintenance jobs Tournadozer handled at Interstate Iron Co.'s mines near Calumet, Minn. The "C's" big diesel engine and 4-wheel drive develop plenty of drawbar pull for heavy loads. "C" pulls Carryall-Scrapers, Sheepsfoot Rollers, Rooters, trailers, air compressors; skids light generator plants, poles, piling. Can push heavy trucks, switch cars.

PLOWS SNOW

In 34° zero weather, a Rural Municipality in Manitoba cleared over 600 mi. of roads and farm lanes in 142 hrs. Drifts were 3 to 8 ft., some almost solid ice. Tournadozer mounted a LeTourneau 12'3" x 6'6" V-type Snow Plow. High speed "blasts" drifts, throws snow well back. Big tires, adjustable runner shoe protect plowed surface. Fast travel time means more plowing time, better emergency service.

SHEEPSFOOT ROLLERS

accepted on U. S. Engineer Corps work. Single or multiple units. ground-bearing pressures to 935# per sq. in. loaded. 427# empty.

ROOTERS

PCU operated, gives fast, low-cost breakage of layered rock, other tough materials, beats blasting costs.

CARRYALL SCRAPERS

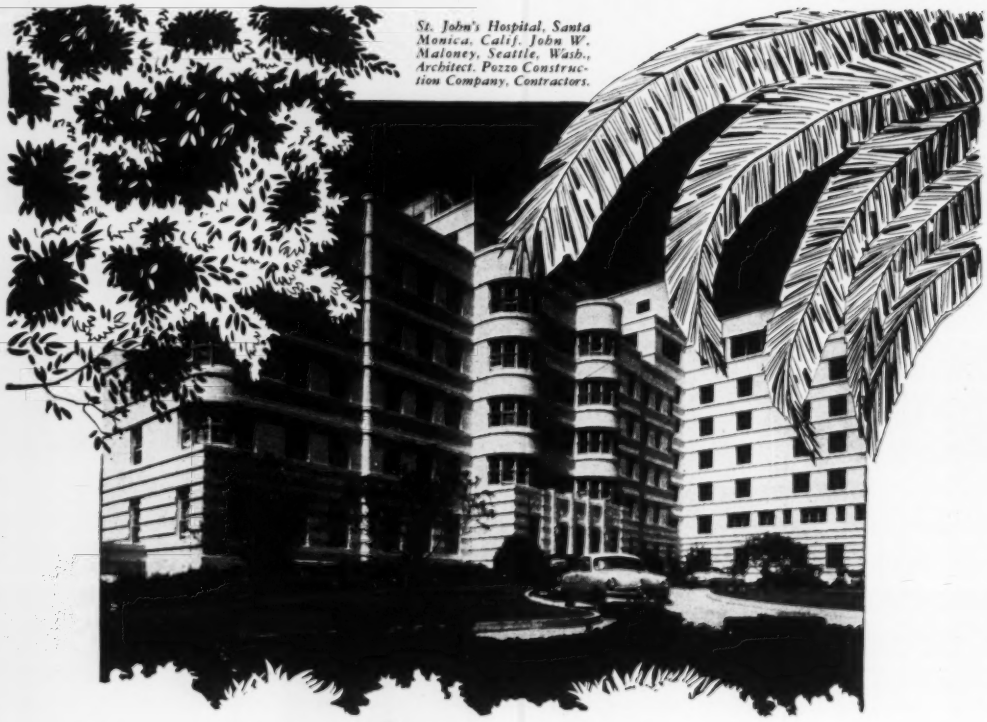
4 to 23 heaped yards for all makes of crawler tractors with PCU's. Fast-loading, positive ejection.

BULLDOZERS

for D8 and HD19. Angledozers for D7 and D8. Dirtmovers consider them most rugged and efficient, available anywhere.

POWER UNITS

have simple cone-clutch, true spooling, sure-grip brakes to give you accurate control. Adapt to wide range of heavy-duty crawler tractors.

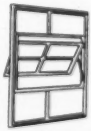


St. John's Hospital, Santa Monica, Calif. John W. Maloney, Seattle, Wash., Architect. Pozzo Construction Company, Contractors.

Architect John W. Maloney says:

"The Truscon line enabled us to fill every window need in the beautiful new St. John's Hospital"

Strikingly beautiful is this new St. John's Hospital in Santa Monica, California. Well-illuminated and well-ventilated with Nature's free sunlight and fresh air, because it is well-windowed with Truscon steel units. Truscon Series 46 Double-Hung Steel Windows complement the sweeping, modern architectural lines; admit ample daylight; operate easily; require an absolute minimum of maintenance. Truscon Intermediate Projected Steel Windows with dual ventilators permit ample, controlled flow of air in inclement weather. Truscon Commercial Projected Steel Windows lend flowing lines and proper ventilating facilities to the service units. Truscon Steel Screens provide economical, long-life screening. See SWEET'S for complete details on the entire line of Truscon Windows for every purpose; and write for detailed literature on all other Truscon Steel Building Products.



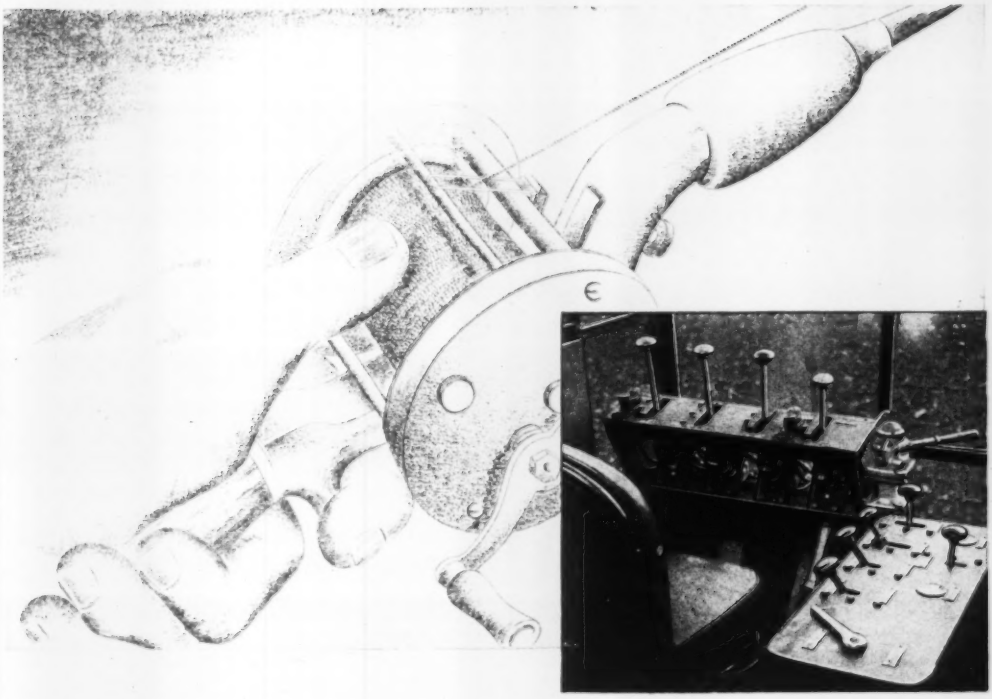
TRUSCON® STEEL COMPANY

1064 ALBERT STREET • YOUNGSTOWN 1, OHIO

Warehouses and Sales Offices in Principal Cities • Subsidiary of Republic Steel Corporation

TRUSCON MARK OF MERIT PRODUCTS

TRUSCON a name you can **build** on



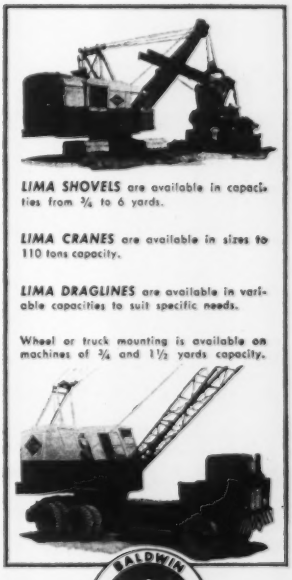
Complete Command of Operations . . .

Right under your thumb

With LIMA precision air controlled clutches and brakes you get the same smooth, easy, responsive control of the hoist and drag lines that you do when you apply the under-the-thumb tension to the line on a fisherman's reel.

There are other advantages, too. LIMA precision air control promotes long life of the machine and uniformity to the operating cycle. It also automatically compensates the adjustments of the clutches for wear of lining and to meet weather and operating conditions.

Last (but by no means least), there's no mid-afternoon slowdown because of operator fatigue. Both man and machine can work at peak level for the entire shift.



LIMA SHOVELS are available in capacities from ¾ to 6 yards.

LIMA CRANES are available in sizes to 110 tons capacity.

LIMA DRAGLINES are available in variable capacities to suit specific needs.

Wheel or truck mounting is available on machines of ¾ and 1½ yards capacity.

BALDWIN-LIMA-HAMILTON CORPORATION
LIMA-HAMILTON DIVISION
LIMA, OHIO

OFFICES IN PRINCIPAL CITIES OF THE WORLD

BALDWIN-LIMA-HAMILTON

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS • TRUCK CRANES

BALDWIN BLH LIMA-HAMILTON

TELSMITH

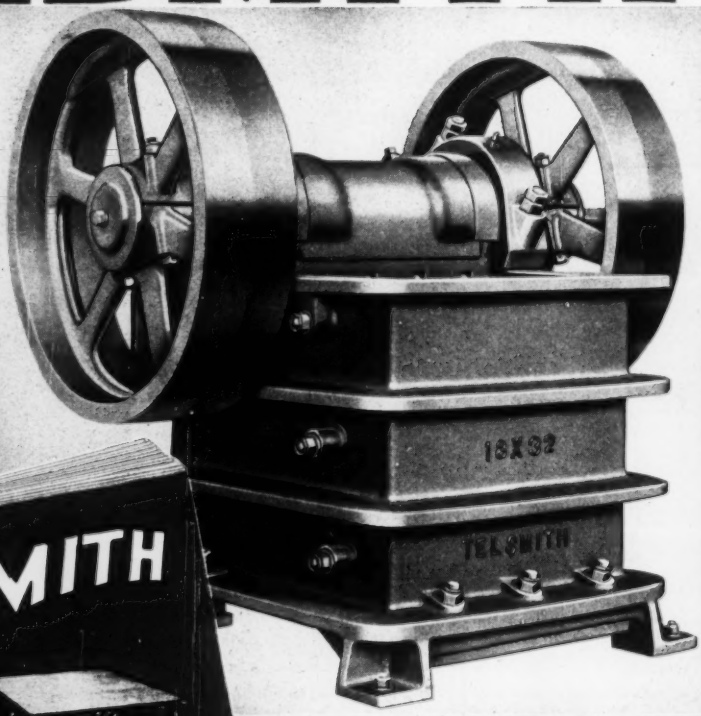
TELSMITH
Primary Crushers

Jaw Crushers: Sizes: 10 x 16 in. to 30 x 42 in., 22 to 240 tons per hr. capacity.

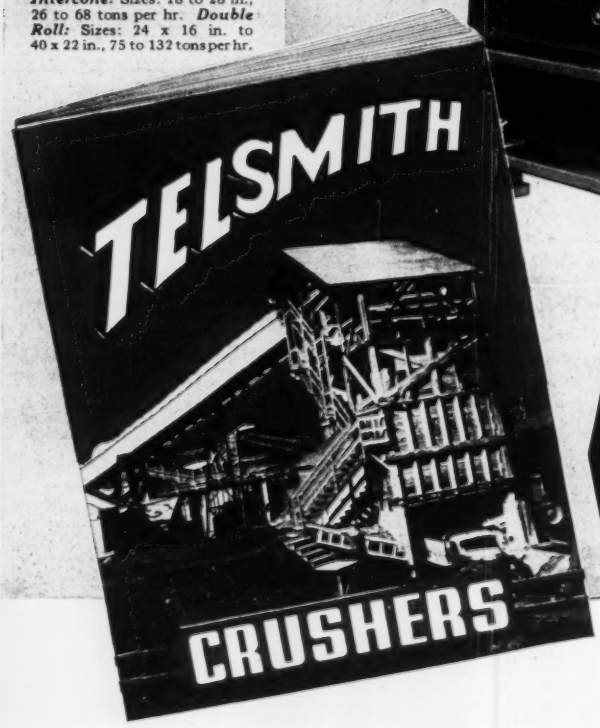
Gyratory Breakers: Sizes: 6B to 25B, 26 to 400 tons per hr.

Secondary Crushers

Gyrasphere: Sizes: 24 to 48 in., 15 to 210 tons per hr. ***Intercone:*** Sizes: 18 to 28 in., 26 to 68 tons per hr. ***Double Roll:*** Sizes: 24 x 16 in. to 40 x 22 in., 75 to 132 tons per hr.



JAW CRUSHERS



CRUSHER GUIDES

Send for TELSMITH BULLETINS...

No. 271 Jaw, Gyratory, and Double Roll Crushers

No. 274 Gyrasphere Crushers

No. 270 Intercone Crushers

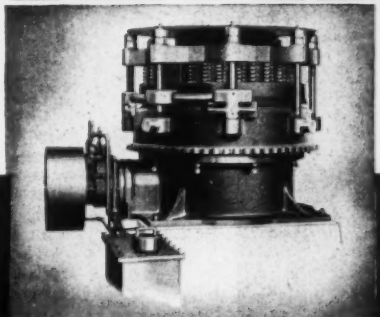
FREE ON REQUEST

CS-6-R

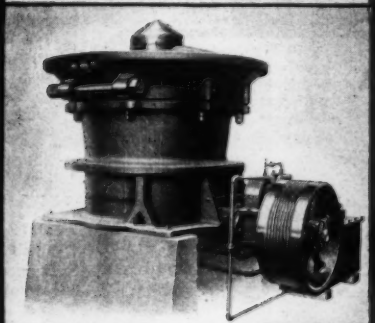
CRUSHERS

for

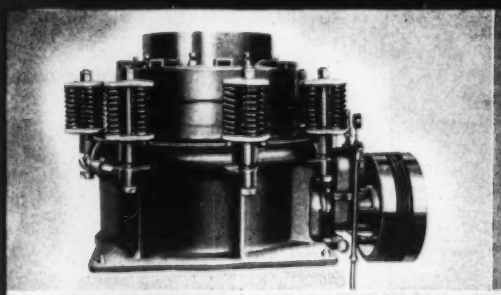
BETTER PRODUCT • BIGGER CAPACITY LOWER COST



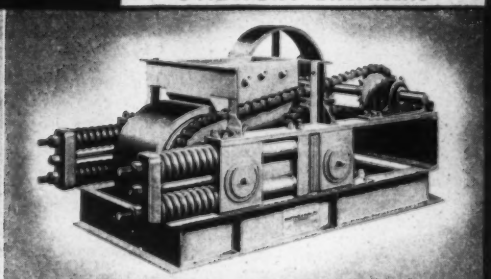
GYRASPHERE CRUSHERS



GYRATORY BREAKERS



INTERCONE CRUSHERS



DOUBLE ROLL CRUSHERS

SMITH ENGINEERING WORKS, 500 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Sengworks, Milwaukee

51 East 42nd St. New York 17, N. Y. • 211 W. Wacker Drive Chicago 6, Ill. • 713 Commercial Trust Bldg. Philadelphia 2, Pa. • 238 Main Street Cambridge 42, Mass. • Boshck Eqpt. Co. Milwaukee 3, Wis. • A. N. Wigle, 294-6 N. Roosevelt Ct. Columbus 9, Ohio

Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif. • Interstate Equipment Co., Statesville, N. C.

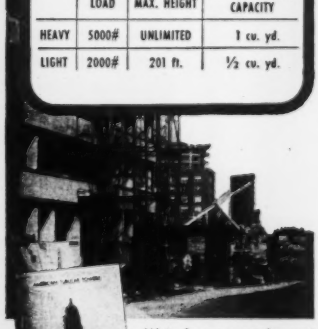
Rish Eqpt. Co., Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. • Wilson-Woesner-Wilkinson Co., Knoxville 8, & Nashville 6, Tenn.

"AM[illegible]ICAN TU[illegible]LAR"

THE [illegible]AME IN ELEVA[illegible] TOWERS

- Now standardized in two basic types—available in both Single and Double-Well models from distributors throughout the country.
- All Material Brand New
- Timken Bearings Thruout
- All Bolts Cadmium-Plated

	LOAD	MAX. HEIGHT	CONCRETE BUCKET CAPACITY
HEAVY	5000#	UNLIMITED	1 cu. yd.
LIGHT	2000#	201 ft.	½ cu. yd.



Write for parts catalog and construction techniques.
NEW-Lightweight low-cost, panel-type PT Towers. Send for descriptive brochure.

AMERICAN TUBULAR ELEVATOR COMPANY
330 North St., ZELIENOPLE, PA.
Division of UNIVERSAL MANUFACTURING CORP.

READER COMMENT

Good concrete bridges

Sir: This letter is intended not to be a pronouncement, but something provocative of discussion.

During a recent reconnaissance made in Bergen County on another subject, the writer took special note of the concrete bridges in this area, particularly those over the Saddle River and its tributaries. These bridges are from 10 to 40 years old and are an especially fine example of durable concrete in a very rigorous climate.

Of course, one must first give credit to the good engineering design and control which were undoubtedly used on these bridges; also to the contractors' workmanship. But beyond that I want to make the following somewhat provocative statement:

These bridges were built with trap rock aggregate and a quartzite sand. A certain measure of the permanency of these bridges is due to this very sound aggregate.

Unsound aggregates have proved a failure for exterior concrete wherever they have been used. This applies, for instance, to the shales in a town like Ithaca, N. Y. where the writer is familiar with the exterior concretes which have stood up very badly, and where there is continual pressure by the concrete companies and contractors to use the local aggregate rather than import aggregates of an igneous base.

These bridges were engineered by Roscoe P. McClave, Bergen County engineer, and supervised by C. W. Voorhis, assistant county engineer. The more recent bridges were designed by Frank Tamborelle, bridge engineer.

ELWYN E. SEELYE
Seelye Stevenson Value & Knecht
Consulting Engineers
New York, N. Y.

Chicago's bold planning

Sir: Your editorial of Jan. 31, p 17, rightly called the Chicago Plan Commission's ten year plan "bold and far-sighted". The plan continues, however, a dangerous policy all too evident in our national economy now. This is the policy of subsidies to highway, air and water transport at the expense of the railroads.

Your Jan. 24 article on the Chicago Plan lists $53 million for airports, $150 million for waterways, $456 million million for streets and expressways and $75 million for "non-railroad facilities" in connection with the proposed new railway terminal. While competing forms of transportation benefit by these large amounts, railways are expected under the plan to contribute $125 million of their own money to help beautify Chicago. After exhaustive studies the railroads reported to the Mayor of Chicago Dec. 23, 1949, that there was no economic justification for such large sums for a new terminal and that the consolidation would not reduce railroad expenses.

The book "National Transportation Policy" lists 1949 federal expenditures for transportation as approximately $490 million for highways, $330 million for waterways, $200 million for air, and nothing for railroads. This policy is dangerous because the railroads are finding it increasingly difficult to stay healthy in an atmosphere of strict regulation and subsidized competition. Healthy railroads are a must in either peacetime or wartime national economy.

The Chicago Plan Commission's scheme, without the unfair burden on the railroads, deserves wide support, since Chicago is in urgent need of many of these proposals.

M. J. PLUMB
Structural Engineer
Gary, Ind.

Oldest new bridge?

Sir: In the November 8, 1951 issue of ENR, p48, you pictured a "New Old Bridge" believed to be the only wooden covered bridge built in New England so far in the 20th century.

In March 1936 a wooden covered bridge, of ancient vintage, over the Contoocook River and on the road between Greenfield and Hancock, New Hampshire was washed out by flood. It was replaced in 1937 by another wooden covered bridge.

The present bridge was designed to carry H-10 loading on a clear span of 81'-8". The clear roadway is 20'-0" as against 13'-6" in the old bridge. The overall length of the bridge is 88'8" and the overall width 26'6". Timber ring connectors and Douglas fir were used in the trusses. Overhead clearance is 14 ft.

The Bridge Engineer was John W. Childs and the Assistant Bridge Engineer was Harold E. Langley, now Bridge Engineer of the New Hampshire Department of Public Works and Highways.

Massachusetts can still claim the title to greater length in a wooden covered bridge of recent construction.

HENRY C. NEWELL
Concord, N. H.

BUCYRUS ERIE

6-YARD

150-B

To Heavy Duty Excavati

ADDED to the time-proved superiorities of design and construction which have made Bucyrus-Erie quarry and mining shovels traditionally "years ahead" are important features new to an excavator of this size, yet *thoroughly proved in the field*. Among these 150-B features are:

Exclusive Two-Section Boom with tubular dipper handle free to rotate in saddle block. Used with outstanding success on Bucyrus-Erie's large stripping shovels for many years, this design speeds the working cycle and permits increasing the payload because it reduces front end weight materially — yet provides enormous strength. Upper boom section carries only load resulting from pull of ropes, s trussed lower section transmits directly t revolving frame the vibrations, torsional shock loads set up in digging. Rope crow quiet, positive, with crowd machinery loca on the deck.

Powerful New Main Machinery designed double twin hoist, smoothly delivers po where you want it, when you want it. H machinery pulls dipper straight through t banks with steady positive action. Fast s swing, with quick acceleration and de tion, shaves seconds off every cycle.

Larger Stronger Mounting has new p machinery arrangement, which provi engagement of the propel for fast Cored box-section tread links ha wearing paths for rollers and driv Cat belts have high wear resis adjustment for long periods.

The 150-B has full Ward Le motor control, is fully con service, features numero vances that make it tru

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Three of these "Cat" Diesel DW20 Tractors with No. 20 Scrapers haul 3,000 yards of earth a day. Average trip, 1.8 miles; average round-trip time, 9 minutes.

How Oakland tackles traffic problem

"Caterpillar" Diesel No. 12 Motor Grader leveling fill dirt on the Eastshore Freeway project.

"Cat" Diesel D8 Tractor with No. 85 'Dozer pulls No. 28 Ripper on the Eastshore Freeway, under construction near Oakland, Calif.

Scheduled for completion next month, a new 4.2-mile addition to California's Eastshore Freeway will relieve pressure on traffic in the busy Oakland area. This latest section of the Freeway is being built by Fredrickson & Watson, Oakland.

When finished completely, the Freeway, begun in late 1947, will carry traffic from Vallejo to San Jose and will permit a speed of 55 miles per hour within a few blocks of Oakland's business district.

325,000 yards of earth had to be moved in the 4.2 miles now being completed, with 26,000 yards of concrete pavement and 8,700 yards of concrete over-structures poured.

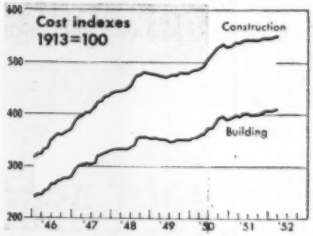
"Caterpillar" Diesel Tractors, Scrapers, Motor Graders, Bulldozers and a Diesel Engine are being used by Fredrickson & Watson to speed completion of the project. Speaking recently of the "Cat" Diesel DW20 Tractors in particular, Construction Superintendent K. Poss said, "We purchased the first DW20s on the West Coast because of 'Caterpillar's' reputation and service rendered on other equipment. We like them and they are performing the kind and amount of work we anticipated. Their ease of operation for size, and their speed, make them the best yet."

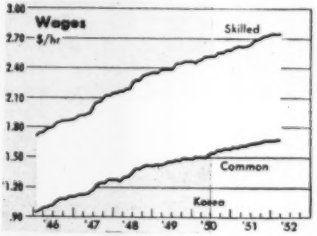
CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

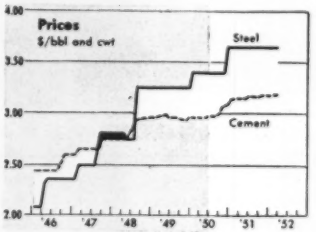
CATERPILLAR REG. U. S. PAT. OFF.

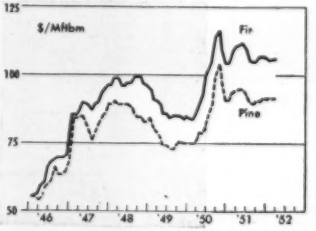
DIESEL ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

MARCH CONSTRUCTION SCOREBOARD









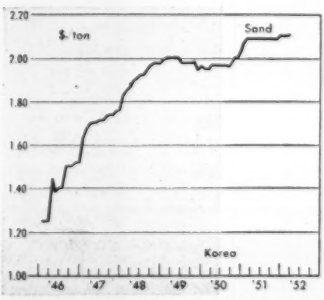
ENR INDEXES (1913 = 100), 20-cities' average	1952 March	% Change from last Month	% Change from last Year
Construction Cost	550.60	+0.2	+2.1
Building Cost	407.21	+0.3	+1.9
WAGE RATES, 20-cities' average			
Common	$1.664	+0.3	+4.3
Skilled (aver. 3 trades)	2.770	+0.4	+5.7
Bricklayers	3.101	+1.0	+7.1
Structural Ironworkers	2.701	+0.1	+5.1
Carpenters	2.501	+0.1	+4.8
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.180	+0.09	+1.0
Structural Steel, (3-mill aver.), per cwt	3.650	0.0	0.0
Sand, per ton	2.106	+0.1	+0.7
Lumber, 2x4 Fir, per M. ft. bm	106.903	+0.3	−3.9
Lumber, 2x4 Pine, per M. ft. bm	91.833	+0.1	−1.8
Common brick, per M	31.121	0.0	−0.1
Ready-mixed concrete, per c. y	11.026	0.0	+0.08
Structural Clay Tile, 3x12x12 per M	151.288	+0.9	+6.2

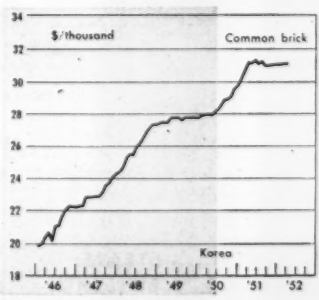
CONTRACT AWARDED (Millions)	1952 Feb.	2-Mos. (9-weeks)	% Chg. from '51 Feb.	2-Mos. (8-weeks)*
Total U. S. (ENR reported)	$788	$1,985	−37.9	−30.4
Private	414	1,137	−55.5	−37.4
Public	374	848	+10.5	−18.3
Federal	152	307	+110.5	−23.3
ENR Volume Index, '13 = 100	386	428	−40.8	−35.0
NEW CAPITAL (Millions)				
Total	$549	$1,031	− 5.6	−74.4
State & Municipal Bond Sales	183	426	−35.7	−10.3
Corporate Security Sales	340	563	+14.5	+ 1.7
Federal (non-federal work)	26	42	.....	−48.7
Federal (federal work)	....	.....	.....	.....

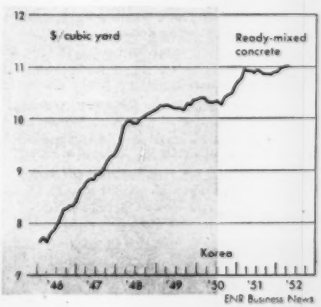
* Computed on Weekly Average

MATERIAL SHIPMENTS & LABOR SUPPLY (Millions)	Dec. 1951(D) Jan. 1952(J)	12-Mo. '51	% Change Mo.	% Change Cum.
Cement, bbls, Bu. of Mines	11.790(D)	241.307	− 5.5(D'50)	+ 5.9(12)
Fabr. Struc. Steel, tons, AISC	0.241(J)	2.702	+12.6(J'51)	+18.7(12)
Lumber, mil, ft. bm., NLMA	2.541(D)	37.655	−11.7(D'50)	− 5.1(12)
Lumber Prod., mil. ft. bm., NLMA	2.632(D)	39.265	−12.5(D'50)	− 0.2(12)
Contract Constr. Employ., BLS	2.319(J)	2.566†	+ 1.6(J'51)	+10.6(12)

† Average



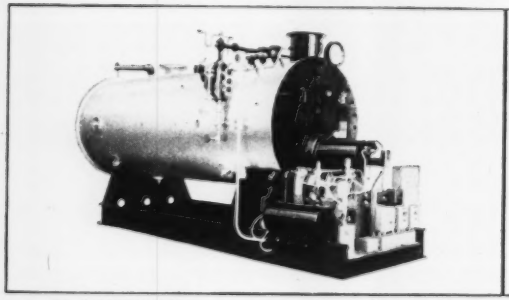


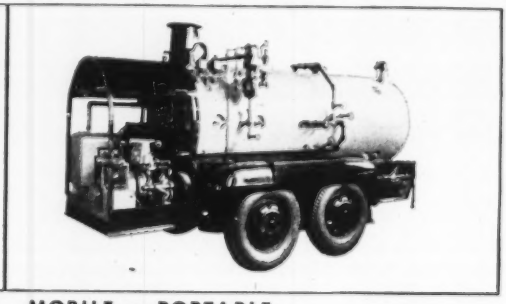


ENR Business News

Steam Hot Water or Heat .. .. at Low Cost for every yard need

CLEAVER-BROOKS SELF-CONTAINED STEAM BOILERS





STATIONARY:

Profitable, uninterrupted yard operation in cold weather calls for steam — hot water — or heat — for many purposes:

- *thawing and heating aggregate in stock piles or bins for cold weather concreting
- *heating water for central mixing plants
- *steam or hot water for cleaning machinery-heating offices and buildings

To provide steam for every yard need — fast, dependably, and at low cost — you will find it pays to equip with Cleaver-Brooks — stationary, self-contained boilers that operate at a guaranteed efficiency of 80% — burn gas, oil, or combination gas and oil — fully meet all codes — standard models available in sizes 15 to 500 hp., 15 to 200 psi. Write for bulletin on Cleaver-Brooks steam boilers.

MOBILE or PORTABLE:

Cleaver-Brooks self-contained mobile or portable boilers are available as trailer or skid-mounted units for:

- *asphalt plant installations
- *heating oils, bituminous materials in tank cars and storage tanks
- *pile-driving and extracting

Oil-fired — rapid starting — steam in 30 minutes or less. Heavy duty built. 80-125 hhp. — capacity: 2760-4300 lbs. steam per hour (212° F.). Constant steam pressure through automatic low and high fire control. All-year, all-season usefulness. Write for bulletin and complete information on Cleaver-Brooks mobile or portable steam boilers.

Cleaver-Brooks STEAM BOILERS

CLEAVER-BROOKS COMPANY
Dept. C, 392 E. Keefe Ave., Milwaukee 12, Wis.
Builders of Equipment for the Generation and Utilization of Heat • Steam Boilers • Oil and Bitumen Tank-Car Heaters • Distillation Equipment • Oil and Gas-Fired Conversion Burners

EDITORIALS

Water policy legislation

STRAWS IN THE WIND indicate that the legislation relating to federal water resources policy, which President Truman expects to send to Congress soon, will not be to the liking of the President's own Water Resources Policy Commission. And it is safe to assume that it will be even less acceptable to the National Water Policy Panel set up by the Engineers' Joint Council to study the water resources problem and make recommendations to the President's commission.

Chief straw is release by the President's commission of the draft of legislation that it drew up to give effect to the findings of its voluminous report. The commission sent this draft to the President a year ago. Instead of making it public then, he turned it over to the Budget Bureau for study, where it has been kept from public view. That bureau and others in the Executive Office have been studying the legislation intensively ever since, as the President told Congress in his budget message.

Well informed Washington sources say that the Budget Bureau went over most of the ground already covered by the President's commission, and is now writing a new bill that will bear little resemblance to the one drafted by the commission.

This possibility should cause Engineers' Joint Council to do some realistic thinking as to what stand it is going to take when Congress comes to consider this water resources legislation. Last fall, EJC recommended to all members of Congress that they accept neither the recommendations of the President's commission nor the recommendations that the Executive Office might offer. Instead, EJC urged Congress to set up a joint committee from its own members or a new commission to study all legislative proposals and come up with still another water resources policy.

That proposal was made before the EJC panel had seen the actual bill drafted by the President's commission. The desirability of the proposal, as a matter of practical politics, was open to question at the time. Now that the commission's actual proposals—as distinguished from the theories discussed in the commission's voluminous report—are available for study, the EJC recommendation has less to commend it. It hardly seems possible that much better legislation could be evolved by either a Congressional committee or a new commission. It might be much worse.

Accrediting engineering courses

QUESTION has been raised recently as to whether accrediting of courses at engineering schools is to be discontinued temporarily by the Engineers Council for Professional Development, as requested by the National Committee on Accrediting. The answer appears to be "no". The executive committee of ECPD has concluded that its accrediting work should not be discontinued even temporarily and has so advised the national committee.

The National Committee on Accrediting was set up by the colleges and universities as a defensive measure. So many organizations have started accrediting as to involve the schools in a vast amount of paper work and considerable expense. Some agencies have gone so far as to attempt to dictate to the colleges on purely administrative matters.

Accrediting of engineering courses by ECPD was begun with much the same objective as that of the present National Committee on Accrediting—to relieve the schools of trying to serve several masters. When states began licensing engineers, some of the licensing boards set educational standards that engineering schools had to meet if their courses were to be approved by those boards. To eliminate the resulting confusion, ECPD undertook to develop an accrediting system that would be widely accepted.

Accrediting by ECPD has been eminently successful. Its aproval of engineering courses is so universally accepted by state licensing boards for engineers as to give listing of approved courses a semi-legal status. That is the chief reason why ECPD is opposed to a moratorium on its accrediting. Many schools have courses for which they seek ECPD approval; others have courses that were provisionally accredited during the war years and for which they seek full approval.

Also, because accrediting by ECPD has acquired a semi-legal status, most schools look upon it as an asset, which is not the case with much of the accrediting work that resulted in setting up the National Committee on Accrediting.

Moroccan muddle

SOMETHING CONSTRUCTIVE may yet come out of the Congressional investigation into the airbase building program in Morocco, but the causes of waste so far charged don't add up to anything like the $50 million figure that has been loosely mentioned. There are some nasty charges of petty thievery which, if proved, call for fines and jail sentences. There are also charges of petty actions on the part of personnel which, if true, require disciplinary action. But the real causes of the muddle in Morocco rest with the initial indecision as to where and how many bases were to be built. Confusion begets inefficiency and waste, and there has been confusion on the airbase program all the way from Washington to Casablanca. With General Eisenhower calling for airbase work in Europe there are now more compelling reasons for straight thinking and careful planning than ever before. Morocco is a warning of the need for decisive action before construction is started.

Help Fill Empty Scrap Yards

The nation's steel mills are desperately in need of more iron and steel scrap. More steel scrap is needed today than ever before because steelmaking capacity is greater. It is due to reach 117 million tons in 1952.

Only management action in industry can help insure an adequate supply of scrap. Many industrial leaders have named a permanent "salvage committee" for their plants and yards.

Urge *your* committee to check and list every questionable piece of equipment and machinery. Then call your scrap dealer.

Remember, scrap resulting from current steel production isn't nearly enough to do the job.

ARMCO STEEL CORPORATION

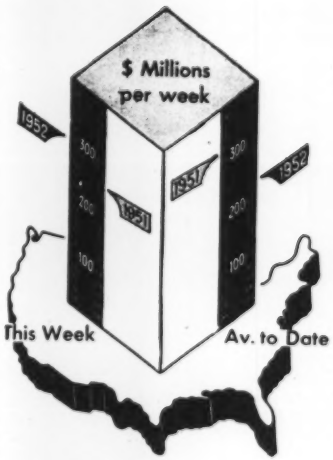
1972 CURTIS STREET, MIDDLETOWN, OHIO • PLANTS AND SALES OFFICES FROM COAST TO COAST • EXPORT: THE ARMCO INTERNATIONAL CORPORATION

ARMCO

THE CONSTRUCTION WEEK

QUANDARY—Army Engineers got alternate bids (ENR Jan. 10, p. 83) for dormitories at three Air Force bases in the Southwest Division—Walker, Biggs and Holloman—but bidders took such liberties in interpreting requirements that all the alternates probably will have to be disqualified as not comparable to standard design. For example, one sponsor of a jacking process proposed reducing ceiling heights to less than specified. Division engineers are now being instructed to inform bidders that alternates are invited for purposes of economy—but not to change the quality of the product. In Detroit last week the Associated General Contractors resolved that "the policy of soliciting bids for construction with alternate designs submitted by the bidder" be abandoned.

OPS STARTS CRACKDOWN—Among 1,500 cases of suspected price violations in the metals trades are a good many involving structural shapes and other building materials, Office of Price Stabilization officials said last week in announcing a nation-wide enforcement drive. Most heavily involved are structural shapes. Many of the prosecutions will be under CPR-98, which became effective Dec. 31. It spells out price regulations for metal products sold through warehouses.



"PROJECT ADEQUATE ROADS"—Executives of 40 national organizations interested in getting this country out of its highway muddle met in New York last week to start a campaign aimed at selling the average citizen on the idea that getting better roads is a local problem. The meeting was called by Albert Bradley, executive vice president of General Motors and chairman of the National Highway Users conference, sponsor of the plan. The new campaign will be called "Project Adequate Roads."

ENGINEER PIRATING—The Office of Salary Stabilization this week complained of a new twist in "pirating" of engineers. Engineering firms are "pirating" engineers from industrial employers and then "selling back their services in some instances at many times their previous earnings." As a result of this and other activities, the Salary Stabilization agency is launching a nationwide inquiry.

Contracts by type of work

	This Week	Cumulative 10 wks. 1952	Cumulative 10 wks. 1951	% chge
Waterworks	$4.8	$50.2	$37.1	+35
Sewerage	4.2	36.6	63.3	−42
Bridges	7.1	47.5	56.6	−16
Highways	27.9	192.7	175.0	+10
Earthwork, Waterways	3.9	69.1	52.3	+32
Buildings:				
Public	54.6	308.2	489.7	−37
Housg., pub.	38.4	170.2	136.3	+25
Housg., priv.	68.3	515.4	428.1	+20
Commercial	9.6	78.8	153.2	−49
Industrial	41.4	531.2	1,321.7	−59
Unclassified	37.4	276.0	235.6	+17
Total	**$296.7**	**$2,281.9**	**$3,148.9**	**−28**

NOTE: Minimum size projects included are: Waterworks and waterways, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100	1913	1926	1949
Constr. Cost	550.60	264.67	115.42
Bldg. Cost	407.21	220.12	115.75
Volume	386	157	112

IN THIS ISSUE—Mobilizers are beginning to loosen controls on steel and aluminum for construction (p. 23).... Two new changes in construction pay rules (p. 25).... Hedin appeals WSB decision (p. 27).... Armed forces housing shows progress (p. 28).... Los Angeles garage story has a sequel (p. 30).... Bridge design aids paving (p. 32).... Federal aid for highways is a vital issue (p. 34).... Industrial waste at Army tank plant gets treatment (p. 39).... Floods may threaten Rio Grande Valley (p. 43).... New hangar construction technique used at Marseilles (p. 52).... Portugal's largest bridge completed (p. 59).... Chicago's redevelopment is underway (p. 74).... AGC convention report (p. 98).... Industrial financing shows trend (p. 103).... Home builders feel left out on labor policies (p. 105).... New contract policy explained (p. 107).... High dam asked for Cumberland (p. 144).

How Bitumuls-sand "Stockpiling" makes road-crew time more productive

LOCAL SAND-PITS become sources of sound material for cold paving mixtures and wise labor utilization when Southern ingenuity puts winter-idled road crews to work with BITUMULS.®

No special equipment is needed. Sand used in this project is from abandoned pits or river banks.

Bitumuls HCM, even in "full formula" amount, makes an economical cold mix which is stockpiled during slack winter months for use during warmer summer weather. Workability is retained almost indefinitely without sacrifice of toughness, cohesion, or stability.

The Bitumuls-sand mix is suitable for surface, leveling courses or thick bases even where subgrade deflection may be anticipated.

Louisiana State Highway Engineers report that these rich sand mixes sustained far less damage than other types of paving during the unprecedented "freeze" of the 1950 winter season.

Mixing Grades of Bitumuls are ideal for treating virtually all available aggregates. Quick-Setting Grades of Bitumuls are favored the world over for armorcoat and macadam work. High Viscosity Bitumuls is recognized as standard for surface treating.

Nation-wide there are Bitumuls Engineers working out of strategically located plants. These men are specialists, qualified by training and varied experience to consult with you, to your advantage, about your paving needs . . . roads, parking areas or airports.

Bitumuls is ready for prompt delivery to your job site.

AMERICAN
Bitumuls & Asphalt
COMPANY

200 BUSH ST. • SAN FRANCISCO 4, CALIFORNIA

Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Columbus 15, Ohio
St. Louis 17, Mo. Mobile, Ala. Baton Rouge 2, La. Tucson, Ariz. Inglewood, Calif.
Oakland 1, Calif. Portland 7, Ore. Seattle, Wash. Washington 6, D. C. San Juan 23, P. R.

Manufacturers of Asphalt and Asphaltic Products

OLD CONSTRUCTION GETS NEW START—Among projects halted since the first freeze on controlled materials, is the $10-million Uris Bldg., Inc. in New York City. After DPA authorized completion of the building last week, a few men began coming back to work. But there will be no steel for it until the second quarter. It will need over 5,000 tons of structurals in the next three quarters. (ENR photo.)

CMP caught in cross-fire as metals shortages slacken

The logjam in steel and aluminum for construction has started to break up.

Barring a new military crisis, you'll probably see the end of the bulk of materials controls next January. That's a full year earlier than anyone had expected up to now. Already they are under heavy crossfire from users and producers.

The Defense Production Administration has made a start, small but important, toward loosing the huge backlogs of building. It is permitting them to trickle back onto the books of the construction industry.

Last week it released authorizations for completion of nearly all (186) building projects on which work was started then halted by the government freeze on controlled materials. They total over $125 million in construction. Among them are the $13.5-million 260 Madison Ave. Corp. office building and the $10-million Uris Bldg. Inc. in unemployment-stricken New York City. Largest project listed was the $15.5-million Republic National Bank building in Dallas, Texas.

Overnight, orders with CMP (Controlled Materials Plan) authorization tickets for steel on these projects began to materialize on producers books. How fast the orders can be converted into shipments is another question. But there are indications it won't be too long.

• **Policy change**—For NPA it was the second major relaxation of building controls in as many weeks. A few days earlier (ENR Feb. 28, p. 23) it had authorized construction of 645 religious and community projects totaling $218 million for construction during the nine months after July 1.

To take care of structural steel allotments for these newly authorized projects, DPA increased the second quarter allocations to the Facilities and Construction Bureau. The amount for commercial construction etc. (ENR Feb. 28, p. 24) is stepped up almost 10,000 tons to a new figure of 17,197. Industrial expansion is given a small increase of less than 3,000 tons to a slightly higher total of 267,775. DPA made these additional allocations out of reserves and out of steel turned back by the Defense Department when the military program was rephased.

The National Production Authority last week hastily summoned its Construction Industry Advisory Committee and told it self-authorization regulations would be eased in the forthcoming revision of CMP Regulation 6. NPA is going to permit five tons of carbon steel self-authorization (current limit is two tons). Of the five tons, two tons may be structurals other than wide flange shapes. NPA is pulling the plug on small order business.

Policy change outlined

The thinking behind these changes was outlined by DPA Manly Fleischmann last week to a House Public Works Subcommittee. He said he thinks controls over steel "can be substantially relaxed toward the end of this year."

He predicted there will be an adequate supply of structural steel for highways by the first of next year. Testifying on a federal-aid highway bill (ENR Feb. 14, p. 43) authorizing appropriations for fiscal 1952, 1953, and 1954, he said this: if the present international situation does not

Controls ease . . .

(*Continued from page 23*)

change, steel for highway use should be available without controls in the years covered by the bill under consideration.

He even went so far as to tell an Ohio representative that steel would be available soon for the Ohio Turnpike. But he quickly added that allocation of the increased supply of steel to the turnpike or other highway facilities would be up to the Bureau of Public Roads until controls are removed.

Before week's end DPA announced a policy for allocating steel to road projects has been worked out which will be "satisfactory" to the sponsors of super-highway and turnpike projects—including the Ohio Turnpike.

But Fleischmann did not confine his observations before the subcommittee to steel supply for highways. Schools churches and public works will be getting more late this year, he said. Much of the storage of structural steel is due to heavy use in construction of plants for defense industry. These demands are now leveling off.

More metal available

Out in Detroit at the convention of the Associated General Contractors (See page 98) John L. Haynes, director of the building materials division of NPA said the aluminum situation also is encouraging.

By the third and fourth quarters of this year, the supply of aluminum should be such that allotments to building materials manufacturers can be made at a minimum of 50% of base-period consumption. By comparison, second quarter allotments for this year are less than 35% of base-period consumption, he said.

His remarks were amplified the next day by Donovan Wilmot, vice president of the Aluminum Company of America. He said the government should reappraise the aluminum supply situation in view of "definite softening of the market in several directions."

The government's decision, to stretch out the mobilization program over a longer period, has reduced military requirements and the aluminum industry is now in an "excellent position" to make greater shipments for civilian use if permitted to do so. And aluminum is not ecountering market "soft spots" alone.

Uncle Sam's goliath steel and aluminum industries are beginning to produce more than programmed defense requirements are using up in a guns-and-butter economy. Expanding steel capacity enabled NPA last week to make 250,000 tons of sheet and strip steel available to producers of consumer goods.

POLICY to relax controls on steel was outlined by DPA's Manly Fleischmann.

NPA Administrator Henry H. Fowler invited producers who can use the steel without requiring additional copper or aluminum to apply for a 10% increase in the quantity allotted them for the first quarter this year. High on the list of items to be considered for increases are building materials and construction machinery.

Cautious optimism

The new DPA policies on steel are being received by construction men with enthusiasm in some quarters, skepticism in others. Most enthusiastic are those whose projects have been given the green light.

But many point out that the relaxations do not go far enough yet to have any great effect on backlogs.

The total amount of structural steel involved in the 645 newly authorized projects is only 13,000 tons—over a nine-month period. Total amount involved in projects permitted to complete is only 23,000 tons—over the second, third, and fourth quarters.

A total of 36,000 tons of structurals over nine months is not much compared to NPA's figure of 850,000 tons of structural steel for construction in the second quarter. As one steel fabricator puts it:"They may as well have spit on the ocean."

In spite of the relaxations, the AGC went right ahead and passed a resolution asking further relaxation and complete elimination of controls as soon as possible consistent with national defense: and early announcement of such action before it is taken to encourage more advance planning of needed projects.

CMP decontrol will be slow

In the light of the dramatic letup in demand for some shapes of steel and aluminum, mobilization chiefs have agreed on a policy of proceed-with-caution in decontrol.

But already they're blueprinting a gradual watering down of materials controls during the last half of 1952. Fleischmann has ordered a fresh survey of the metals outlook. He is preparing a report to clarify the picture. The report is expected to oppose the hasty loosening of controls in view of a number of persisting shortages, the mounting rate of arms output ahead, and fluctuations in supply-and-demand.

Mobilization Director Charles E. Wilson is reported to concur with Fleischmann's go-slow policy. Fleischmann is definitely against any dismantling of CMP, in spite of pressure from steel and aluminum industries.

Instead, Fleischmann would like to boost allocations as rapidly as is necessary to take up any slack in mill capacity. Before easing allocations for consumer goods very much, DPA would try to increase allotments for defense plant expansion, basic metals development, railroads, highways and other defense-supporting activities.

Producers are fearful the relief will not arrive in time to prevent idle mill capacity. Business is ordering cautiously, they point out. The stretch-out in the defense program has brought cutbacks in demand for basic aluminum and some steel. They say the apparent "surpluses" in requirements are exaggerated. Already expansion programs are being re-examined and some may be curtailed—particularly in aluminum unless more demand becomes apparent.

Steel strike threatens

Another cloud on the construction horizon is the unsettled negotiations between the CIO Steelworkers and the steel industry.

Price and wage policy makers are playing seriously with the idea of settling the steel dispute along these lines: pay Phil Murray's men 20 cents an hour more in pay and fringe benefits, give the steel industry a $3-a-ton price increase.

WSB does not have any hope it can reach a settlement by March 23.

What is worrying WSB is that a strike may occur after the recommendations are made because of industry reluctance to accept them. WSB's recommendations on wages, the union shop and other contract issues will, on the whole, be acceptable to Murray. Steel companies are certain to object strenuously on the price offer and on

a government endorsed union shop.

The Office of Price Stabilization has come up with a price increase ranging from about $1.50 to around $3, depending on how the Capehart formula is applied. The Iron Age, unofficial organ of the industry, states bluntly: This will not be enough.

Should a steel strike occur, it will knock out all allotments schedules and put another crimp in the steel supply situation. The severity of this disruption would depend upon the strike's duration.

Plants allotted steel

Here is the breakdown of the structural steel allocation for industrial expansion and general commercial construction in the second quarter. Remember that this is structural steel to go into the building of new plants.

The structural steel shown here does not go into products of the industries. For example, the tonnage allotted to building materials is for construction of new plants to produce those materials. By contrast, ENR showed in last week's table (p. 24) the tonnage that will be incorporated in building materials themselves.

Structural steel in tons
second quarter 1952

Program	Allotment
Aircraft, shipbuilding and ordnance	45,718
Aluminum, magnesium and light metals	41,902
Building materials	3,040
Chemicals	37,951
Consumer durable goods and service equipment	280
Containers and packaging	1,633
Copper, copper alloys, brass	703
Electrical equipment	530
Electronics and communication equipment	2,259
Machine tools and general industrial equipment	12,078
Iron and steel mill products, ferro-alloys, foundries refractories	98,793
Leather and leather products	.....
Lumber and lumber products	363
Miscellaneous metals and minerals	2,074
Pulp, paper and paper board	5,154
Railroad equipment	372
Rubber	2,805
Scientific and technical equipment	3,442
Textiles and synthetics	7,852
Tin, lead and zinc	664
Printing and publishing	162
Total	267,775
General Commercial Construction	17,197
Grand Total	284,972

Construction faces 15-cent wage rise

Wages for on-site construction workers would be allowed to rise 15 cents an hour during 1952 under a proposal being considered by the Wage Stabilization Board.

This boost in the ceiling on construction area wage rates and further approval of up to 7½ cents an hour for health and welfare benefits has been suggested to WSB by its Construction Industry Stabilization Commission.

CISC has jurisdiction over the wages of mechanics and laborers employed on a construction site. Subject to WSB's approval, CISC makes its own regulations for controlling wages in the industry. WSB rules do not apply specifically. Construction wages are controlled on an area basis. Since last July, CISC has fixed area rates at a level 10% above those paid on June 24, 1950—Korea. (For other workers, WSB's policies permit increases of 10% above January, 1950, plus increased cost of living since Jan. 15, 1951—now almost 5%.

The average straight-time union wage scale in construction is $2.46 an hour. A 15-cent increase would average about 6%. Construction workers also have a more favorable base date for computing the 10%—June instead of January, 1950. So these workers would have a more favorable policy, except that the 15 cents would apply for all of this year, no matter how much living costs might rise and possibly give other workers larger increases.

Two industry members of the tripartite CISC—James D. Marshall of the Associated General Contractors and E. W. Dunn, consulting engineer—object to the proposed policy on health and welfare benefits for several reasons. They object, particularly, because the cost of the benefits to the contractors would not be charged against the allowable wage increase. They also assert that it would be unstabilizing and destroy local bargaining practices common in construction.

Members of CISC discussed the proposed new wage policy with WSB members this week.

Salary rule change permits more pay

Salaried white-collar employees who work longer hours, but can't get any extra pay because of government wage and salary controls, got some relief this week.

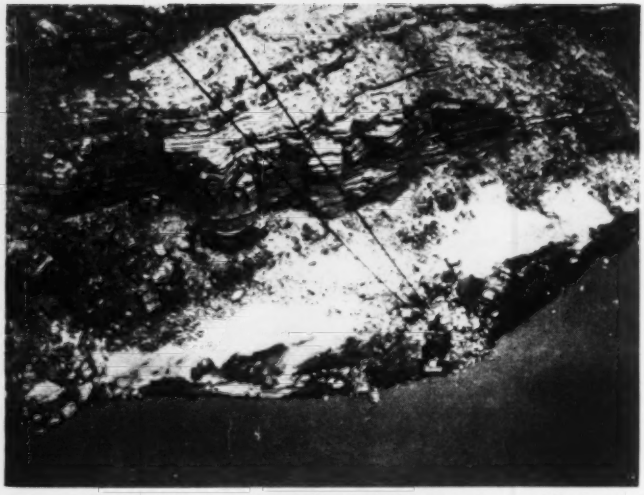
The Salary Stabilization Board in a new salary order, No. 10, has given employers permission to compensate for longer hours worked under certain conditions.

This extra compensation was allowed, previously, to foremen and supervisors under salary order No. 4 issued Oct. 29. Then it was broadened to apply as well to professional engineers in salary order No. 8, issued Dec. 14. The new salary order, No. 10, incorporates the two previous orders. It also makes the policy applicable to any other employees whose pay or work is so related to foremen, supervisors, engineers or other employees getting paid for longer hours that extra pay is necessary to maintain differentials or avoid inequities.

Where an employer had a practice, before the Jan. 25, 1951 wage freeze, of paying employees for hours worked beyond the normal work week, he may continue that practice. No SSB approval is needed.

Where he had no previous plan or practice, an employer may compensate for extra hours worked in a "regularly extended workweek." No approval is necessary unless the employer wants to pay more than straight time.

Some conditions to be met: The employee must be subject to a regularly scheduled work period. The extra hours must be approved by a supervisor and, though the number of extra hours may vary from week to week, they must run over a substantial period of time during which the workweek is regularly extended to cope with increased work loads. The regulation does not cover irregular or occasional extra work inherent in the requirements of the job. Records must be kept of the hours scheduled in a week and the hours actually worked by the employee getting the extra pay.



HIGH ABOVE the Colorado River a small metal "skip" lowers Bureau of Reclamation engineers 716 ft to the opposite shore where they will take soundings to determine the location's suitability for proposed Marble Canyon Dam. (Wide World photo)

Dam sites studied for Marble Canyon

The Bureau of Reclamation is surveying and diamond-drilling two possible sites for the proposed Marble Canyon Dam on the Colorado River. The sites are about seven miles apart and located just above the upstream boundry of Grand Canyon National Park.

A dam about 300 ft high is being planned to develop the full head of the Marble Canyon reach for power—from the park boundary to the proposed Glen Canyon Dam above Lee Ferry, the dividing points between the upper and lower Colorado River basin.

The Reclamation Bureau is carrying on the Marble Canyon investigations as part of its study for further development of the lower Colorado. Final decisions for that part of the river hinge on settlement of the Arizona-California water dispute. Glen Canyon was recommended a year ago in the Interior Department's program report for the upper basin (ENR Feb 15, 1951 p. 24). Secretary Chapman is holding that report and attempting to reconcile divergent views before submitting it to the President and eventually to Congress.

Preliminary geological surveys helped determine the best potential location for Marble Canyon Dam. The Bureau is core-drilling and mapping to selected sites. At the same time, it is developing preliminary designs—to reveal needs for additional field data while crews are on the ground.

Costs of surveying and drilling at inaccessible canyon sites run high. The Bureau has $180,000 for Marble Canyon studies in the current budget and has asked for $160,000 next year.

A dam at Marble Canyon has been proposed for a long time. It was included in the Department of the Interior's 1946 preliminary report on the Colorado River. A 300-ft dam would form a reservoir of about 500,000-acre-ft capacity extending roughly 50 mi upstream. Despite the height of the dam, the Marble Canyon power station would be essentially a run-of-the-river plant. Regulation of the river by the big Glen Canyon project upstream would assure a high firm power output for the proposed plant.

Oklahoma highway shift heads active road week

Under strong pressure from the bondholders of the Oklahoma City–Tulsa toll highway, the Oklahoma Turnpike Authority dropped plans for a dog-leg southern route through Sapulpa, Okla., and decided on a short-cut across the northern edge of the city. A savings in cost of $650,000 was anticipated by the authority.

The move was fought by R. P. Matthews, vice-chairman of the commission and an editor of Sapulpa. Matthews pointed out that $260,000 would be lost that had already been spent on plans, engineering and land purchase for the southern route.

The 88-mi tollway had sold $31 million in bonds in 1950 to finance its construction. Due to increased costs it became necessary to borrow $7.2 million more to finish the road.

When the additional financing was brought to the attention of E. S. Emerson, a Houston, Tex., lawyer representing 113 investment houses that had bought the original issue, he told the authority that the bondholders were anxious to see economies effected. One of the things he pointed out was the alternate northern route through Sapulpa. The new route plus other savings have reduced the amount of new financing needed by $1.4 million.

• **New Jersey plans new expressway**—An $80-million plan to span Newark Bay and construct an expressway across Bayonne and through Jersey City to connect with the Holland Tunnel was disclosed last week by State Highway Commissioner Ransford J. Abbott.

The commissioner said that in the event surveys now in progress disclose a sufficient anticipated revenue, the Governor will direct that the entire project be turned over to the New Jersey Turnpike Authority for construction and operation. The expressway and connecting bridge would be constructed as a spur to the turnpike with a direct connection being made at the Port Street interchange at Newark.

Included in the 9-mi expressway project would be the present $5-million Bayonne Freeway.

• **Mackinac Bridge will be second longest**—The Michigan Legislature is contemplating an $87-million bridge across the Straits of Mackinac. The bridge would have 26 spans, the longest of which will be a suspension span of 3800 ft.

A measure has been introduced which would allow the Mackinac Bridge Authority to proceed with the construction of the bridge and authorize it to borrow money from any source.

• **New Jersey Turnpike attracts motorists**—The 118-mi New Jersey Turnpike has already had a traffic volume it did did not expect until 1957. The State Turnpike Authority met and discussed spending $1 million to widen the present roadway and add additional tollhouses. Plans for speeding completion of connecting links with other arteries were also considered.

• **Other highway activities**—Highway

projects in Idaho totaling $12 million approved by the Idaho highway board. . . . The new $44-million Delaware Memorial Bridge has carried over 2½ million vehicles during the first six months of its operation. . . . Constitutionality of Indiana's toll road law will be tested in a suit brought by Sam Ennis, Hammond, Ind., against the Indiana State Highway Commission. The decision either will block, or clear the way, for construction of a toll road across northern Indiana, to hook up with the proposed Ohio turnpike. . . . A road commission spokesman said West Virginia plans to build a bridge over the Ohio River between Parkersburg, W. Va., and Belpre, Ohio. . . . Work on Atlanta's north-south expressway will halt after letting of one more contract unless new bond funds are made available, it was warned by Sam P. Allison, who is the state highway engineer for expressway projects. . . . The State Highway Department of Virginia has been empowered to build toll roads financed by tax-free, self-liquidating revenue bonds. The enabling legislation has been passed by the Virginia legislature. The legislature is considering a bill which will permit cities to build toll expressway links to the toll turnpikes built by the state. . . . Stalled by lack of steel in plans to extend its Pacific Great Eastern Railway from the present southern terminus at Squamish about 40-mi into North Vancouver, the British Columbia government is going ahead with earlier promises to build a highway along the same route. . . . The Arkansas Highway Department will be reorganized under the direction of a supervisor especially hired for the work. It had been thought that bids for the job would be asked from accounting firms, but the state comptroller suggested that it be done with the use of present personnel and a new director.

NPA approval given new sanitation work

A total of 1,350 water and sewage construction projects had received first quarter allotments of controlled materials up to last week. For the second quarter, the Water Resources Division of the National Production Authority had approved last week 922 new projects and expected to allot materials for a total of 1,400 to 1,500 new starts in that quarter.

Their first-quarter allotments totaled nearly 140,000 tons of steel and more than 2 million lb of copper. Materials were allotted to the remaining projects in the current quarter out of the division's total available supply of 183,000 tons of steel and 2.66 million lb of copper.

Missing witness key in Hedin appeal

J. D. Hedin Construction Co. was denied the chance to present testimony from a key witness in its defense against charges of wage violations.

Hedin attorneys made this charge and others in its appeal last week to the National Enforcement Commission of the Wage Stabilization Board. The company is fighting a decision of the Detroit Regional Enforcement Commission imposing penalties totaling $70,000 on it for alleged overpayment of bricklayers in construction of a Veteran's Administration Hospital at Ann Arbor, Mich. (ENR Feb. 7, p. 24).

Hedin (through his attorney) said the denial of the requested continuance of the first hearing was arbitrary and deprived him of the testimony of Harry C. Bates, president, AFL Bricklayers and labor member of WSB. Hedin says Bates told him to go ahead and pay a $3 rate.

And they made other complaints: Motions for dismissal were reserved and not ruled upon immediately; time allowed for filing briefs was too short; Hedin's credit is gone because of the impending sanction; There is inequality in the application of the penalties of the law, i.e., a man with no taxable income wouldn't be hurt. This raises the question of the validity of the law.

• **No area rate**—Hedin discussed the absence of any regulation setting up an area rate. He says the government has admitted there was no area rate at the time of the violation.

As to amout of sanctions, Hedin claimed three things as extenuating circumstances: need to compete, confusion in the area, and good faith. He also claims he incurred $20,000 expense in transportation, hotel and other charges by having to present his case in Detroit rather than in his place of business. So he has suffered a terrific penalty before the hearing even began.

Chairman Helen Humphrey of the enforcement commission (ENR Feb. 28, p. 53) asked Hedin's attorney whether he was contending that the denial of continuance and the holding of the hearing in Detroit were denial of due process. The reply was that it was a very severe penalty, but the Detroit hearing was not as serious as denial of continuance might be.

Government attorneys argued: Hedin violated the wage freeze; General Regulation 12 did not invalidate General Regulation 6; confusion was nationwide but other contractors did not raise rates even though they could not get bricklayers, so Hedin shouldn't get special consideration.

EUGENE D. DIXON heads WSB's enforcement division for tracking down wage violations.

The government also said Hedin brought to the attention of the commission the claim that he suffered injury by denial of subpoena for Bates. (This was disputed in Hedin's rebuttal.) At any rate, Bates' testimony would not have been enough to excuse Hedin. Subsequently, in attacking Hedin's claim of good faith, the government claimed that all Bates could have shown was "an indirect oral WSB approval."

• **Plea is made**—The government pointed out the findings (of the Detroit commission) are binding unless it is proved there is no evidence to support them. In the interest of decentralized enforcement, the findings should be upheld, the government pleaded.

Summarizing on the severity of sanctions, the government said the Detroit commission had considered the amount of increase Hedin made, the unstabilizing effect it had, the pirating that took place, etc., and feels that it "overvalued the mitigating circumstances."

As for the $40,000 penalty based on the lump sum contract, it is based on the fact that the Defense Production Act is emergency legislation. It was passed in a hurry to take care of potential danger. "What is at stake is the national emergency," the government contends.

The WSB Enforcement Commission has taken the case under advisement and would give no indication when a decision would be handed down.

AIRMAN'S AREA—These single family units, part of a newly completed 500-unit Wherry Act project, make life more comfortable for servicemen and employes at Williams Air Base, Chandler, Ariz. Built by Rubenstein Construction Co., Phoenix, Ariz., homes rent for $53.20 a month for two-bedroom units to $95.20 for four-bedroom unit. (Air Cops photo.)

Better family homes for GI's in the offing

Heavy construction and home building follow entirely different construction practices. They often travel along side-by-side, but seldom do their paths cross in the normal run of construction business.

Housing for families of servicemen has brought the two branches together. Today men skilled in heavy construction—the Army's Corps of Engineers and the Navy's Bureau of Yards and Docks—are working shoulder-to-shoulder with men skilled in residential building to provide family housing for the armed forces here in the U. S. and abroad.

To help mesh their talents and experience, veteran homebuilder Thomas P. Coogan, director of the Armed Forces Housing Agency, and his colleagues in charge of housing for the Army, Air Force, and Navy are driving toward standardization of housing procedure.

One of the first fruits of their efforts is expected to appear next week. It will be a standardization of information and conditions prescribed for bidders on Title 8 Wherry Act housing projects.

• **For better homes**—"Its purpose is to attract the best builders and provide more information for sponsors," Coogan says.

"It will eliminate discrepancies in the bidding requirements of the three services. It will standardize space requirements for design, taking advantage of latest improvements in the use of space. And it will establish uniform requirements for certified checks to prove financial responsibility."

Standardization of site and utility leases and of other procedures are under study. These changes, as they emerge, will have one objective—better homes for service men.

Life at service bases is no longer what it used to be. Good family housing is a recognized essential to garrison a guns-and-butter defense machine.

More than morale is involved. Defense economy is a factor. According to an off-the-cuff remark by Senator John D. Sparkman, it takes $18,000 to train an airman. Reenlistments at Chanute Field, Ill. were running at 27% until a Wherry Act project and recreation facilities were built. Reenlistments then jumped to 98%. Housing is a way to keep trained specialists in the service.

• **Progress**—In the 2½ years since the Wherry Act was passed, 61 projects containing 23,000 units have been completed.

Seventy more containing 38,200 units are under construction. Ninety-three projects with 28,000 units are under development. And many more will be needed to take care of the families of servicemen.

To date nearly half of the units completed have been built for the Air Force. Both the Army and Navy are moving fast on new plans to close the gap.

• **Broad field**—Coogan's AHFA embraces more than Title 8 Wherry Act housing to meet defense needs. It touches defense housing programmed by the Housing and Home Finance Agency under Title 9 of the National Housing Act. It covers demountable housing, for temporary use. And it includes construction of public quarters, built and owned by the govern-

ment on bases of the armed services.

Coogan points out the purchase and use of demountable housing and public quarters is limited. Government appropriations for them are slim. Use of demountable housing is satisfactory only under emergency conditions. Bulk of the job ahead rests with builders backed by private lenders.

To attract adequate financing and top-flight housing construction talent, Coogan is concentrating on Wherry Act projects. They are being carefully programmed and planned, and will draw more mortgage money "as soon as investment houses grow familiar with them."

Working with him on the job are experts from each of the armed services. They include Lauren Reynolds, Robert E. Richards, Col. E. V. M. Schuyler, and Col. J. G. B. Elliott of the Air Force; Stephen J. Angland, George Korink, and Lt. Comdr. John Arrington of the Navy; and Michael H. Kalette, Brig. Gen. Ralph I. Glasgow, and Lt. Col. R. F. Toomey of the Army. Coogan is coordinator.

Together they've been at it for a little more than two months (ENR Dec. 20, 1951, p. 28). Many organizational problems still need to be ironed out. But Coogan moves fast and he's getting plenty of cooperation.

NAHB steps up drive for home warranty

Disturbed by the many complaints voiced before the Rains congressional subcommittee, which is probing home construction throughout the nation, more home builders are starting to give their written word to back the quality of houses they sell.

Their word is to be inscribed on a warranty to be given each new buyer of a home, guaranteeing that the builder will make good on defects which show up within a reasonable period and for which he would normally be held responsible.

The plan may become official policy for all 25,000 members of the National Association of Home Builders if it is approved by the association's board of directors in May. The Chicago convention of the association, held in January, gave the plan a good reception when it was suggested.

• **The warranty**—Sample warranties indicate that the following would be covered by most builders:
• **Heating unit**—Guaranteed proper size and function for at least one year.
• **Roof**—To be maintained against leaks for a period of six months. (One warranty shows a period of one year.)
• **Basement**—Service against seepage for a period of one year.

COORDINATOR—Aiding the Defense Dept. family housing program is veteran builder Tom Coogan. (Reni photo.)

• **Miscellaneous**—Most warranties will contain 30- to 45-day provisions against defective wiring, hardware, moving woodwork, sagging floors, and other faulty material or workmanship items.

The warranty will usually have a clause disclaiming responsibility for damage arising from ordinary wear and tear, storm damage, or defects inherent in the materials used.

As an example of a defect inherent in the material, the appearance of cracks in concrete foundation walls are cited. These cracks are due to expansion and contraction and generally do not impair the strength of the foundation walls.

• **Owners manual**—One of the problems builders have encountered in selling homes is the large number of home buyers who have been tenants and are under the impression that the builder is responsible for many items which are really owner-maintenance problems.

As part of the education of new home buyers a booklet is to be issued along with the warranty which will describe the newly purchased home and all its equipment.

The manual points out that there are 3,000 component parts in the average house and like an automobile they require a period of breaking-in before they function smoothly.

• **Move-in-man**—Many builders are following up the warranty and the manual with a "move-in-man" who will attend the moving-in of the new home owner and conduct him over the house, showing him how to operate the various parts and apparatus of the building.

NEWS BRIEFS

• **Holed through**—The 4,650-ft No. 1 tunnel of the North Poudre supply canal of the $150-million Colorado-Big Thompson project has been holed through. Three of the four tunnels of the canal project have now been completed but are yet to be lined with concrete.

• **No solution**—U. S. Army Engineers had hoped that a settling basin dug 5 ft below normal channel depth for 1¼ mi last year as an advance measure, would prevent serious delay in opening the Cuyahoga River at Cleveland to navigation this spring. Recent tests show the settling basin is now almost filled again.

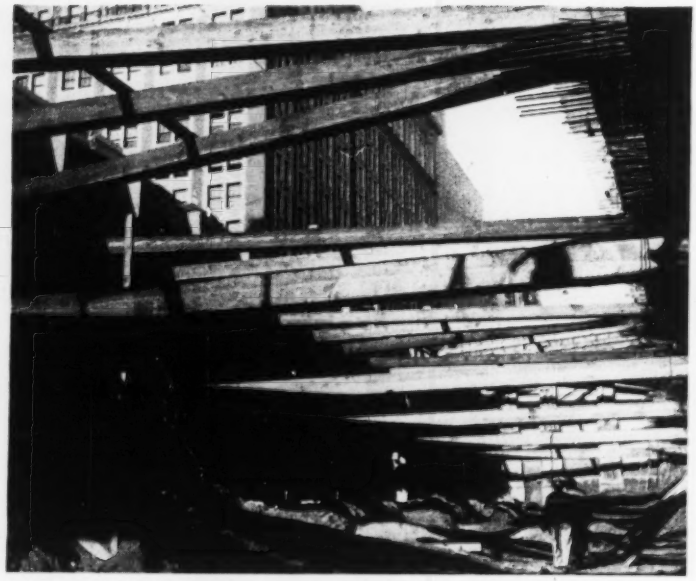
• **Not spending enough?**—Federal agencies are criticized these days for spending too much. It is surprising to see congressmen criticize the Corps of Engineers for not spending enough on the Sacramento River flood control project. About two-thirds of the $61-million project cost has been expended over a long period of years. Because of high expenditures for other things federal officials have cut down budget requests for this project to $1 million a year. That amount is barely enough to cover the $600,000 maintenance.

• **Set to start**—Bids for construction of Palisades Dam on the Snake River between Idaho and Wyoming have been called by the Bureau of Reclamation for opening April 1 at Idaho Falls, Idaho. The earth-fill structure will be 2100 ft long, 2300 ft wide at the base, 40 ft wide at the crest and 26 ft high.

• **Lakes rising**—U. S. Army Engineers predict the levels of the Great Lakes will reach higher elevations during 1952 than during 1951. The present high degree of "wetness" in areas tributary to the lakes provides the basis for the forecast.

• **Plenty of copper**—The Connecticut State Water Commission, in its sampling work on the Naugatuck River, estimates the river is carrying away about 1,000 tons of copper annually in the form of residue from the brass industry of the valley. Zinc is also lost. Methods of salvaging this waste at the source are under study.

• **Jet runways**—Latest thinking on preventing damage to runways for jet airplanes is to redesign the planes. By directing the jet flame horizontally, damage to all pavement types due to the intense heat will be averted.



TIMBER STRUTS set between completed building and precast wall columns, which were set in caissons before basement excavation, comprised the only temporary work in big excavation for Pershing Square Garage in Los Angeles.

Underground garage walls built last

PRECAST WALL COLUMNS serve double duty in Los Angeles' Pershing Square underground parking garage (ENR Feb. 28, p. 28). Before taking floor-slab and roof loads the columns act as integral parts of the bracing for final excavation.

Horizontal struts from already-completed interior columns are the only other main elements of the bracing. This simple arrangement is said to be substantially cheaper than ordinary bracing systems because it contains fewer temporary elements.

Effectiveness of the system was demonstrated during December and January when abnormally heavy rains soaked the earth outside the excavation. No significant movement was noted in any of the columns.

The three-story exterior columns, installed inside drilled caissons before excavation of adjacent material, are braced by the heavy timber struts as material is gradually dug out. Gunited panels between the columns complete the exterior walls. Thus, the struts are the only temporary part of the entire excavation shoring system.

In brief, the construction sequence has been as follows:

While excavation was under way in the central portion of the garage area the precast columns were placed in the caissons around the perimeter, the caissons being removed after the columns were backfilled.

Excavation in the center continued to the point where the material sloped on a natural angle of repose from the exterior column line down to bottom of the hole. Next the interior portion of the reinforced concrete structure was built in this excavation. This is now substantially complete, and work on exterior walls and floors is under way.

In exterior work, wall panels are gunited and shores placed. This will continue until the full wall is completed. After the garage floors are extended out to the wall, the timber shores will be removed.

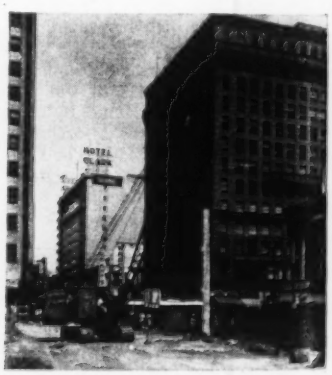
Each column has two corbels, one at the first subfloor level and one at the second level. Exterior columns are spaced on 9-ft. centers. With the interior columns generally on 27-ft centers, this means there are three exterior columns for each interior one.

• **Caisson placement**—First step in installing the columns was to drill the open caissons and place therein telescoping steel casings that vary in diameter from 5 ft at the top to 4 ft at the bottom. The bottom of the hole was belled out and footing keyway forms placed. Circular concrete footings were poured in the bottom of the open caisson.

Top of the column was accurately held in position while the bottom portions of the casing were carefully backfilled with sandy material and puddled for best compaction. Casings were then withdrawn for reuse.

UNLOADING CASINGS for lining drilled holes in which precast columns and their footings were placed. (Downtown Business Men's photo)

PRECAST COLUMNS weighing 9 tons were trucked to the job from the casting yard in the industrial section of Los Angeles. (Bucyrus-Erie photo)

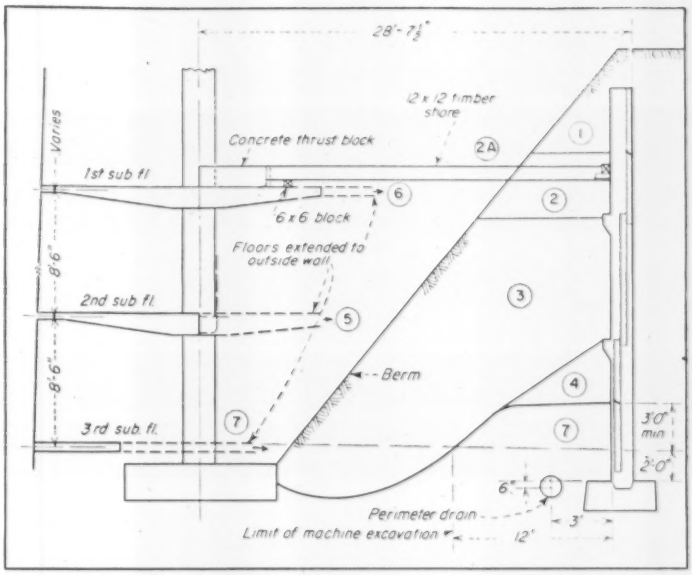


PLACING COLUMNS in the drilled casings required a heavy-duty crane. The steel casings were withdrawn as the hole was backfilled. (Bucyrus-Erie photo)

• **Digging and shoring**—When the building construction reaches first subfloor level, excavation on the remaining sloping material starts. The top one-sixth is dug out and a 5-in.-thick gunited wall placed between columns. This braces between the columns and serves as exterior sheeting while further excavation is undertaken.

Next, another one-sixth of the depth is excavated and a second section of wall panel gunited, making the work ready for the first shores.

Following installation of initial shores, the next one-third of the wall height is excavated, using machinery where possible. The wall panels are shot. (In some cases additional shores were necessary.) Next another one-sixth of the depth is dug out and the wall panel for this shot. This, in general, leaves the wall column supported laterally by the timber shores and the bottom one-sixth of the original material. With such support for the exterior walls, the first and second subfloors will be poured out to the exterior walls. This provides additional support for the columns and permits completion of the bottom portion of the wall and the base slab.



STEP-BY-STEP excavation and shoring procedure. Numbers indicate sequence of excavation, wall guniting, shoring and pouring structural elements. Estimated savings are in the neighborhood of $100,000.

• **Gunited walls**—Original plans called for precast concrete wall sections to be inserted in slots in the column units with grout backfill insuring a firm seating. But early in the procedure a test section of five gunite panels was shot. This turned out to be satisfactory both to the contractor and city inspectors so the precast wall idea was rejected in favor of guniting.

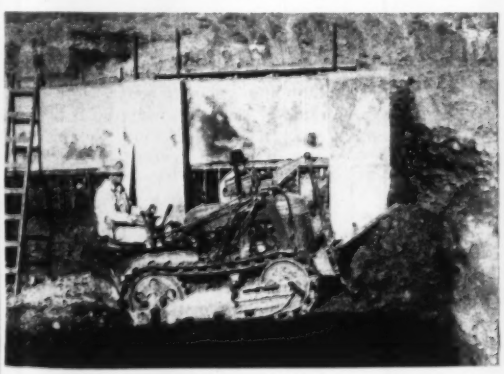
The precast columns are grooved at the slots for the wall panels. During guniting, ¾-in. pipes are fitted in these grooves. These are to be later withdrawn. Then when the panels are substantially cured, the holes left are used for pressure grouting. This assures the structural integrity of the wall-column assemblies and makes the wall watertight.

• **Reasons**—There is ample justification for adoption of what might be considered a complicated shoring procedure. First and foremost is the matter of cost. One estimate has placed the saving to the contractor involved in the use of this forming system at $100,000. In a project valued overall at about $5,000,000, this is a substantial part of the profit in the operation.

• **Credits**—The garage is being built for the City Park Garage, Inc., which holds a 50-year franchise on the property and garage operation. Ford J. Twaits is president of the franchise holding firm.

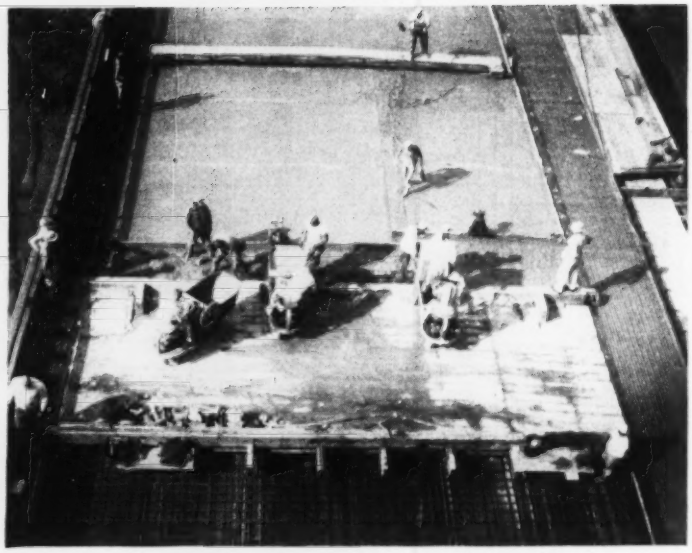
Contractors on the work are Ford J. Twaits Co. and Morrison-Knudsen Co., Inc., as co-venturers with Ford J. Twaits Co. sponsoring the project and T-S Construction Engineers as associates. R. H. Kirkman is project manager and C. A. McMahon is project superintendent.

Design was accomplished by Stiles Clements Associated Architects and Engineers, with Murray Erick Associates as consulting engineer.



MECHANICAL EQUIPMENT is used in so far as possible for excavation of material left in front of the columns. A second section of the wall panel will be gunited before any more material is excavated at this point. (ENR photo)

GUNITED WALL PANELS fit in notches in the precast columns. A ¾-in. pipe in a groove in the notches is later withdrawn for grouting the panel-column joint after curing to make the joint watertight. (ENR photo)



BRIDGE ON BRIDGE—Rolling bridge for concrete dumping makes full 36-ft-wide concrete pour possible with motor buggies that use steel-grated mall for runway.

Contractor liked this design

PAVING New Jersey Turnpike's Passaic River Bridge (ENR Jan 17, p. 30) was a relatively uncomplicated task, thanks to a design that anticipated some of the contractor's problems.

Dan Brock, project manager for Johnson, Drake and Piper, Inc., Minneapolis and New York, contractor, points out a few useful design features, and suggests some more.

"In the first place, the 6-ft steel-grating mall gave us first-class access to the work from the very beginning," he says. "It made a perfect run for our material transportation.

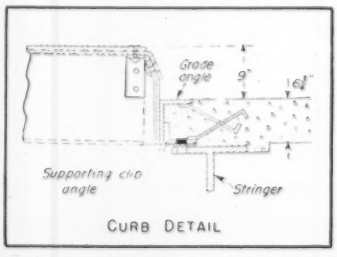
"Then the steel curbs made special forming for curb and gutter unnecessary. However, the lack of end access (because the two spans at each end were not placed until near the finish of the job, due to foundation stabilization requirements) made it necessary to hoist everything."

• **A perfect screed rail**—"Perhaps the sweetest little feature, however, was the grade angle. This angle runs continuously along the steel curb. One leg projects horizontally toward the slab. The other is down-standing. The top of the horizontal leg is carefully placed at grade and spot welded to the curb steel. This way we had a perfect and permanent screed rail. The vertical leg gave us most of our slab header form.

"The top-of-curb was an excellent rail for rolling equipment used for concrete placing and finishing.

"Then we were able to take advantage of some other features in our form stripping," Mr. Brock continues. "The slotted curb openings—provided for roadway drainage—were big enough to pass all form elements but the plywood panels. So there was no problem of lowering this lumber long distances to the ground, then raising it again for the next use. Panels were stacked on cross-braces, then lowered with a small hand hoist. The hoist stayed on the mall, its line working through the grating.

"The inspection walkway was a natural for us in three ways: It was a scaffold for stripping one row of forms; it supported a simple platform for stripping two more rows (a conveniently located shelf angle on the main girder was the other support here); and it provided excellent access to all interior stripping work.



GRADE ANGLE was perfect screed guide for Passaic River Bridge concreting.

• **Suggests four walkways**—"If I were designing a high bridge like this one, I would consider putting in as many as four walkways—one more inboard and two outboard. I'd check the cost of those walkways against the saving in stripping costs and subsequent maintenance-painting costs. Those savings would be at least a third of the over-all stripping costs."

• **Traveling scaffolds**—Not having the convenience of extra walkways, Johnson, Drake and Piper built traveling scaffolds for stripping the other half of the deck between main girders, and for stripping both exterior cantilevered sections.

These scaffold platforms, 32 ft long and 20 ft wide, were suspended from two rows of six trolley hangers, at an elevation that would allow clearance under floor beams. The trolley hangers had stirrups to facilitate the erection of secondary platforms.

Hangers had stringer-beam clamps at their upper ends and trolley wheels at the lower. Wheels engaged trolley beams (two to each scaffold) secured to the scaffold deck. Special spring latches at the beam ends kept hangers from disengaging accidentally. In moving, a spare hanger was installed one position ahead, and the scaffold was moved ahead to engage the spare. The rear hanger then was removed and placed ahead of the initial spare, and so on until the new desired position was reached. Two 2-ton hand hoists, one tied ahead and one tied back, provided pulling and snubbing force for the platform. There were four to seven men in stripping crews.

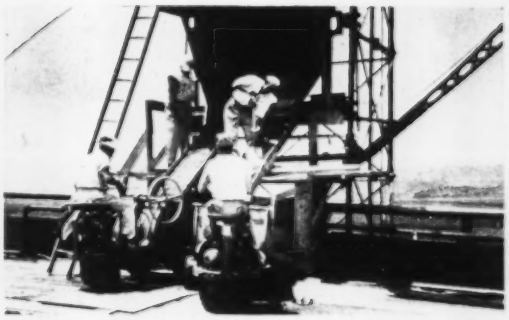
Outboard scaffolds had 6x12-ft outrigger landing platforms for access up over the bridge rail.

• **Dumping platform**—On top of the bridge, where concreting took place, another kind of platform came into play. It was a rolling platform for dumping concrete on a full 3-lane one-way slab. Spanning 36 ft between curbs, and 13 ft wide, the platform was designed for one loaded buggy and one empty buggy at the center. Two standard bar joists reinforced in top and bottom chords, were the platform's main members.

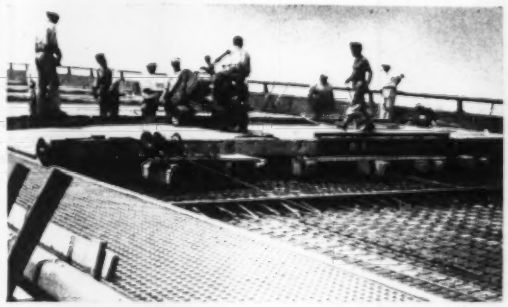
Additional narrow bridges, for finishing operations, completed the rolling equipment. For adequate concrete-placement progress and flexibility, there were two sets of rolling equipment at first. The number of sets was increased to four when both roadways were poured simultaneously.

• **Screeds ride rails**—Full-width con-

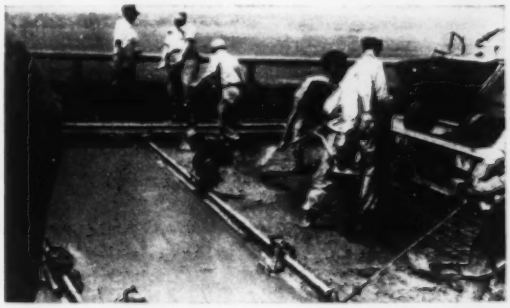
DECK FORMS were fabricated in 12-ft-long frames, with 1 x 4 posts and 2 x 6 joists. Notches in joists held 1 x 6 pieces that formed haunch next to stringer. Stringer spacing is about 6 ft.



POWER BUGGIES get 0.4-cu-yd loads from two-yard hopper at top of concrete-hoisting tower. Two-thirds of concrete was delivered this way. Trucks brought the rest up on the deck.



DUMPING PLATFORM rolls on steel curb. Hand winches pull the bridge along. Main structural elements for platform are bar joists, reinforced near the center.



VIBRATORY SCREEDS ride on grade angles at their outer ends, and on a screed rail at their inner ends. Screed rail (near foreground end of right-hand screed) later is removed.

STRIPPING SCAFFOLD that rolls on trolley hangers gives access to bridge's under side. Positioned to pass under floor beams, these scaffolds served stripping for three-fourths of the deck job.

TROLLEY HANGER is detached at its stringer-clamp end. It will be moved ahead (to right), then it will re-engage the trolley beam on the scaffold deck. (Photos by D. S. Brock)

creting was a money-saving operation Johnson, Drake and Piper chose when it found that the long bridges were economically preferable to two-pass concreting. Design allowed a construction joint, at the 12-ft lane lines. Instead of a construction joint, the contractor put screed rails at the middle on superelevated curves and at the inner third point on tangent crown sections. These were supported by chairs welded to the bridge stringer. The rails' grade was adjusted by bolts that fit threads in the chairs. Vibratory screeds (see illustration) rode grade angles and the rails. When screeding was complete, screed rails and bolts were removed.

• **Concrete haulage**—About two-thirds of the Passaic River bridge pavement concrete was tower-hoisted from trucks on the ground to buggies on the deck. The remainder was trucked onto the deck, after bridge end-sections were paved to provide the necessary access.

The power buggies used the 6-ft steel grating mall for their main runs. One adjacent panel of bridge deck was formed as soon as possible to provide a safety lane and for foot traffic. This panel supported concrete-run turnouts for unloaded buggies every 100 ft.

• **Management**—Passaic River Bridge was designed for the New Jersey Turnpike Authority by Ammann and Whitney, New York, for whom Milton Brunner was project engineer and Royton F. Wheadon was resident engineer on the job. In addition to Mr. Brock, the Johnson, Drake and Piper job organization included George Daniels, general superintendent; Danford Sawyer, asst. superintendent; Hugh Willis, project engineer.

WIDENING AND RESURFACING has been a necessary makeshift where money for complete reconstruction was lacking.

Getting more road funds . . .

A battle to be fought on two fronts

A FIGHT for more federal aid for highways has begun in Washington. If a highway rehabilitation program adequate for today's needs is to be obtained, this battle should be looked upon as the first stage of a campaign that ultimately must be carried to most of the state capitols.

The fight in Washington this year is going to be peculiarly difficult because it must be waged against strong opposition from President Truman and Defense Mobilizer Charles E. Wilson, who still appear to look on the nation's highways as expendable.

The effect of President Truman's opposition became apparent soon after Congressional hearings on new highway legislation began in Washington early in February. When Thomas H. MacDonald, head of the Bureau of Public Roads and one of the staunchest advocates of an expended highway program, appeared before the roads subcommittees of both houses he found himself in the difficult position of having to support the President's budget proposal to limit federal highway aid in the fiscal years immediately ahead to $400 million.

This, however, did not prevent Mr. MacDonald from emphasizing its effect on long-range highway plans. In his formal report to Congress on the state of the nation's highway transportation system, he said:

"It is true that existing roads and streets can, from a structural standpoint, be kept in service by a constantly increasing expenditure for intensive and extraordinary maintenance. It is true in many cases that minor capital improvements, substantially less than those of desirable construction standards, will raise the sufficiency temporarily. But, with fast increasing traffic, such patch-work practices will not overcome basic structural and functional deficiencies of the highway plant and will only result in increasingly more expenditure of materials and man-power with each passing year in a losing fight to stem the rising volume of highway needs."

• 5,000 miles lost each year—A few months earlier, looking at the progressively worsening road situation in terms of miles rather than dollars, Mr. MacDonald told the American Association of State Highway Officials that of the 345,000 miles of surfaced highways in this country, 75,000 miles now are below standards required for adequate service. And because replacement is not keeping up with obsolescence, 5,000 or 6,000 more miles are being added to the mileage of inadequate highways each year.

This country is pounding its highways to pieces faster than new highways are being built. It has been doing so since the start of World War II when a sharp cut was made in highway construction.

At that time, new construction was just about keeping pace with obsolescence. It was not going forward fast enough to meet the steadily rising rate of motor-vehicle registration, yet the nation's total expenditures on new road and street construction had been above one billion dollars a year for several years.

War cut road expenditures to one-third that amount within two years, and it was not until 1947 that road-building outlays again passed the one billion dollar figure. Yet the war added greatly to the load on the main highways, especially in the form of heavily loaded trucks. Truck registration jumped from 4.9 million in 1942 to 6.8 million in 1947.

• What the road bill should be—During the war years the state highway departments had their staffs concentrate on a determination of what their highway needs would be at the end of the war so that they would have a program ready for a quick start as soon as men and materials were available. An analysis of those programs made in 1948 by the American Association of State Highway Officials showed that one-half of the primary federal-aid highway system should be

replaced during the next ten years. That system—totaling to about 200,000 miles—is the nation's basic highway network, which carries the great bulk of the auto and truck traffic.

The needed work, the AASHO estimated, would cost $22 billion. When allowance was made for needed work on other elements of the nation's general-use highways and for the new and widened highways required by the mounting motor-vehicle registration, the association concluded that $2.5 billion would have to be spent on the general-use highways during each of the next ten years at least.

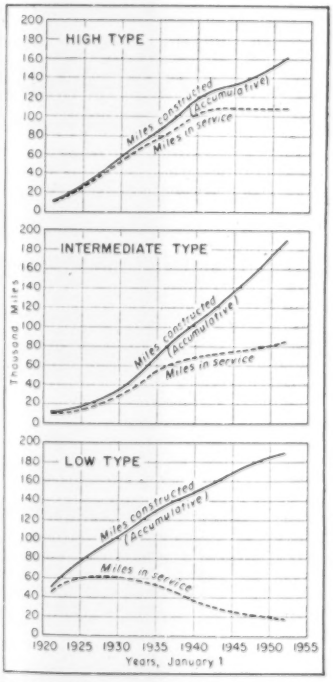
Adding an annual expediture of $700 million on land-service roads brought the total figure that should be spent each year to $3.2 billion.

• Road expenditures lag—That was in 1948 when road-building was getting back into its swing after the curtailment of the war years. Highway authorities realized then that such a large program could not be put into effect overnight, chiefly because most of the money would have to be provided by the state legislatures. They were not geared up to provide funds for such an expanded road and street construction program.

However, highway construction expenditures did rise to $1.9 billion in 1949 and attained a level of $2.3 billion in 1950.

That looked hopeful, but due to the restriction put on steel early in 1951, cuts had to be made in the program. Consequently, the total for 1951 probably was not much over $1.2 billion. Prospects for 1952 are somewhat brighter.

Meanwhile the deficit of badly needed highway work piles up, and motor vehicle registrations continue to soar. They exceeded 52 million last year and are increasing by about 4 percent each year.



FAILURE to build highways for the primary federal-aid system faster than they are wearing out is adding rapidly to the cumulative deficit of road work. (Bureau of Public Roads Charts)

EXPRESS HIGHWAYS through built-up metropolitan districts may cost millions of dollars a mile. This is the East Shore Freeway on the east side of San Francisco Bay.

• New AASHO estimate—For the current hearings in Washington on new federal-aid bills the AASHO made a new check of the needs of the state highway departments to bring all elements of the federal-aid system up to adequate standards. That new estimate sets the total at $32 billion.

• More federal aid needed—It is against this background that the AASHO is asking Congress to increase federal aid from the current rate of $500 million a year to $810 million for the fiscal years beginning July 1, 1953, and July 1, 1954. By 1953 it appears probable that the federal gasoline tax alone will bring into the federal treasury nearly that amount of money as a result of the increase that went into effect in November and the steady increase in motor-vehicle travel. All other motor vehicle taxes probably will bring in at least another billion dollars, hence there is ample justification for the increase even though the need were not as great.

• The states must act—Nevertheless, the battle for an adequate and continuing supply of highway funds cannot be won in Washington. Victory in the fight the AASHO has started there will not solve the nation's road problems. Final solution must come from the state legislatures because it is they who must find the great bulk of the money that is needed.

Raising more state road money will not be easy. Some states now are having difficulty in finding enough money to match the federal-aid funds allocated to them. They will have more trouble in matching the higher federal-aid allocations now sought by the AASHO.

Many states would have ample funds for road work if they were not now diverting a large part of their road-tax income to other than road purposes. Nevertheless, too much time should not be wasted in trying to correct those old evils now because in the end, even if those earlier acts could now be rescinded, new tax monies would have to be found to support the services now supported by diverted road funds.

• Toll roads not the answer—Nor will an answer be found in toll roads, as many people appear to think because of the publicity given to toll roads recently. There are only a few

regions where they are financially feasible, and their usefulness in solving the basic highway problem is limited. When the toll roads now in the planning stage have been built it hardly appears probable that many more will be found to have sufficiently high income possibilities to attract private capital.

• **Bond financing**—Bond issues or higher gasoline taxes, or both, appear to provide the best answer in most states. Bond issues have the advantage of providing large sums of money quickly so that the road work can be stepped up rapidly to make up for the deficiencies of the past few years or to construct high-cost expressways.

Congress, in passing the 1950 highway act, wrote into the federal statute a new provision that permits states to pledge part of the federal aid they will receive in future years for payment of interest during those years on bonds issued now for roadbuilding purposes. That should simplify the problem of financing bond issues in many states.

• **Higher gasoline taxes**—For most states, higher gasoline taxes appear to offer the best assurance of a continuing highway building program at a rate adequate for the growing needs of today. A one-cent increase in gasoline taxes costs the average motorist only seven one-hundredths of a cent for each mile he drives his car, according to estimates of the Bureau of Public Roads, or about 13 cents a week.

MOTOR VEHICLE REGISTRATION AND HIGHWAY EXPENDITURES

(All figures are in millions)

	Total Vehicle Registration	Trucks	Vehicle Miles	Construction Expenditures
1941	34.9	....	333,396	$1,143
1942	33.0	4.9	267,096	775
1943	30.8	4.7	206,747	423
1944	30.5	4.8	211,580	364
1945	31.0	5.1	248,926	354
1946	34.4	6.0	340,655	797
1947	37.8	6.8	370,662	1,344
1948	41.2	7.6	397,589	1,700
1949	44.7	8.0	424,088	1,947
1950	49.2	8.6	456,000	2,345
1951	52.2*	9.1*	500,000*	2,175*

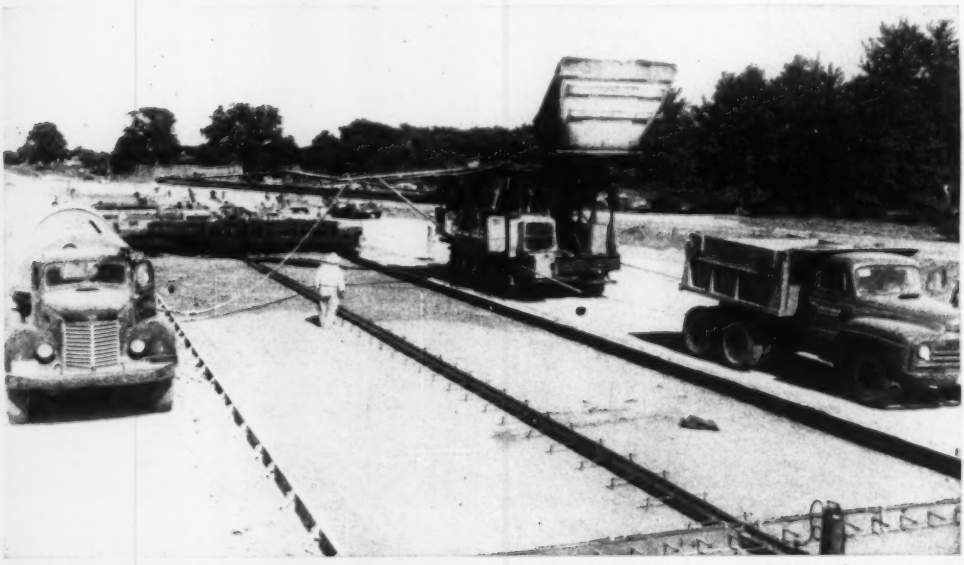
* Figures for 1951 are estimated

• **The fight will not be easy**—Getting state legislatures to vote bonds or increases in the gasoline tax rate will not be easy. There always is strong opposition to any form of tax increase, and the opposition generally is well organized and knows its way around the legislative halls.

But the state highway departments and county road commissions also have access to members of state legislatures, and in many states they now have the support of new or revitalized good-roads associations.

Michigan stands as a fine example of what can be done. Under active leadership from the Michigan Good Roads Federation, the state's highway law was revamped and modernized, and about $30 million annually was added to the highway fund by increases in the gasoline and diesel fuel taxes and in fees for commercial vehicles. Background for the new program was provided by a survey of highways and street needs made by the Automotive Safety Foundation.

• **A battle on two fronts**—Thus the fight for an adequate highway program must be fought on two fronts. Congress must be convinced of the need for an annual rate of federal aid much above the current rate of $500 million. And while that battle is going on, the home-front forces must be moving forward aggressively to obtain more adequate funds from state legislatures.

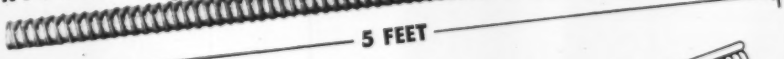


NEW PAVEMENT for heavily traveled U. S. Highway 40 east of Vandalia, Ill. This 5-mile stretch of 24-ft wide concrete pavement, 10-in. thick, cost $488,000.

ENGINEERED TYING DEVICES, ANCHORAGES and ACCESSORIES for CONCRETE CONSTRUCTION

WANT TO S-T-R-E-T-C-H YOUR TYSCRU SYSTEM? THIS DOES IT!

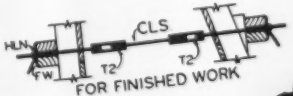
RICHMOND CONTINUOUS THREADED LAG STUD



5 FEET

The Continuous Threaded Lag Stud—with the Tyscru and other parts shown above—greatly expands the usefulness and functions of the Richmond Tyscru System. Tough, coarse-threaded, this Lag Stud comes in 5 ft. lengths and can be cut to measure right on the job. For finished work Lag Stud is threaded into two Tyscrus at either end. For unfinished work one Tyscru can be used and Lag Stud can project through the back form secured by Handle Lag Nut and Washer.

In either case you have a 100% adjustable form-tying method!

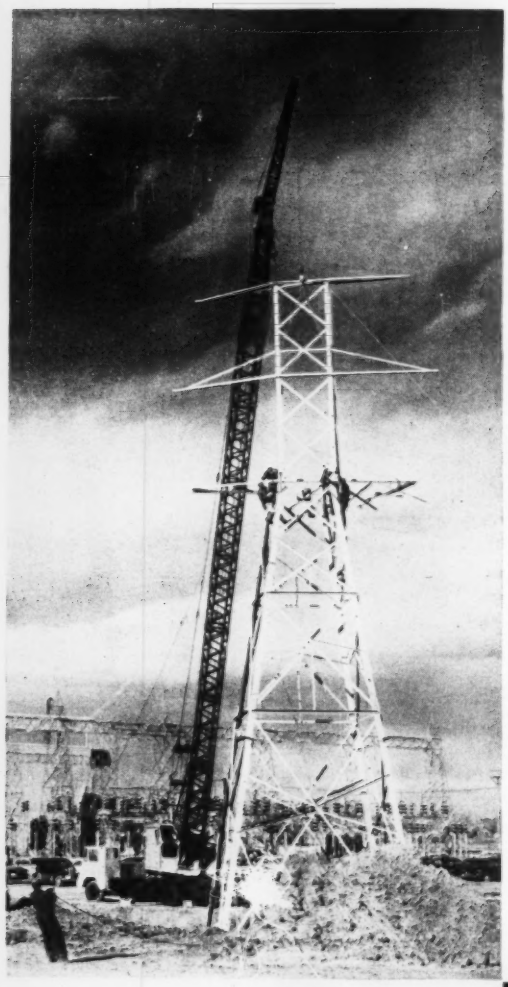


THIS JOB SMELLS—THE BOSS GOT FAST-TALKED INTO CUT-RATE JUNK AND SOME WISE GUY TRIED TO SAY IT WAS RICHMOND—BUT THE RECORD PROVES IT AIN'T.

THEY CALL YOU "SCREWY"—BUT HOW ABOUT THE GUY THAT BOUGHT THAT STUFF!

Get your "Screwy" or "TY" button—write to Andy Watt at Richmond, 816 Liberty Ave., Brooklyn 8, N. Y.

RICHMOND KNOW-HOW—DEPENDABILITY—SERVICE—ESTIMATES & JOB PLANNING



All lifts are easier with a CRANEMOBILE

top section of a 90 foot tower goes up quickly

Maybe you won't be placing steel 90 feet up . . . or handling 25 ton loads . . . but somewhere between these extremes you will find that all lifts are easier with a CraneMobile. With it you have flexible performance to handle long booms for high reach or short booms for heavy lifts.

The CraneMobile is made in several sizes having crane ratings from 10 to 25 tons . . . will speed to scattered jobs . . . and is packed with refinements and operating advantages. Consider the independent worm boom hoist which raises or lowers boom by power only. Then there is the power load-lowering device for precision handling of heavy loads. And, in checking the many BAY CITY features don't overlook the hi-collapsible gantry which reduces overall height to 11′ 9″ or less when traveling. That's only part of the story. Why not get complete information from your nearest BAY CITY dealer or write today for the CraneMobile catalog.

BAY CITY SHOVELS, INC.
BAY CITY, MICHIGAN

203

CHECK THESE FEATURES

- √ Pin-Connected Boom
- √ Hi-Collapsible Gantry
- √ High Road Speeds
- √ Independent Power Boom Hoist
- √ Precision Power Load Lowering
- √ Removable Counterweight
- √ Specially Designed Carrier
- √ 20-25 Ton Capacity

BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

Tough industrial disposal problem solved at renovated army tank plant

DEFENSE PRODUCTION has put lots of industry back in government-owned plant space that had been idle since World War II. New uses of the old space, plus recent new regulations on pollution abatement have combined to require new waste disposal facilities at existing plants. It can be a pretty fair share of the cost of renovating.

Take the 2,000,000-sq ft tank plant of the Cadillac Motor Car Division of General Motors Corporation located in southwest Cleveland, Ohio.

In addition to refitting the former bomber plant shell for production of 25-ton Walker Bulldog tanks, Cadillac had to build a modern waste disposal facility.

Cadillac has tough wastes to treat—chiefly cutting-oil emulsions. And it has tough effluent standards to meet—discharge goes into a park area complete with campsites for local Girl Scouts.

A 250,000-gal-per-day effluent that Cleveland didn't care to handle in its sanitary sewers goes via storm sewer to Abrams Creek, tributary of Rocky River. Waste standards are set not by Cleveland or the State of Ohio (which has a rigid new law with strong teeth) but by the Cleveland Metropolitan Park Board, an agency with some pretty high ideas of how it wants its waters—quality-wise.

NEW NEED—The plant for manufacturing army tanks was there. This complete-treatment works was not. General Motors had to build it. And two miles away, Ford Motor Co. has the same kind of problem—industrial wastes must be treated.

• **Oil and water**—Soluble oils from the machining operations—where they act as cooling agents and chip removers—discharge from the tank plant as emulsions.

Soluble oils, spread as minute droplets through a much larger volume of water, are far cheaper as lubricants and coolants for machining operations than oil alone. Being largely aqueous, they have a much higher heat capacity than oil alone. This is beneficial in cutting operations.

But in order to deliver these advantages of cheapness and high heat capacity in a machining process, the soluble oil must be stable. That is, it must not separate into relatively large volumes of oil and oil-free water.

Chemists have had to devise emulsifiers that won't allow the emulsion to break easily and will keep the oil dispersed in tiny droplets throughout the water even under conditions of extreme heat, pressure, agitation and oxidation. But when the soluble oil has to be disposed of, the emulsion must be broken. Ferric sulphate and sulphuric acid are added to break the emulsions so that oils can be floated and skimmed.

Suspended solids and many minute oil particles are flocculated and settled; pH is adjusted to between 6.5 and 10. That much might suffice under normal circumstances.

But to meet park board specifications, final treatment of effluent has been added to include filtration, aeration and chlorination.

• **Complete treatment**—The whole treatment process stacks up like this:

Factory wastes entering the disposal plant go to two 120,000-gal reinforced concrete storage tanks. From there they are pumped through a weir chamber to a mixing tank where doses of ferric sulphate and sulphuric acid are administered.

There follow a 25-ft dia primary settling tank, then two 35-ft dia separators in parallel, in which oil is skimmed and sludge is settled from the waste. Also doses of activated silica and lime are added. Skimmed waste oil flows by gravity to storage tanks for final disposal by sale as waste oil. Sludge is ejected to a sump, then pumped to drying beds, from which seepage is collected by underdrains and returned for retreatment.

Sludge is disposed of by burning.

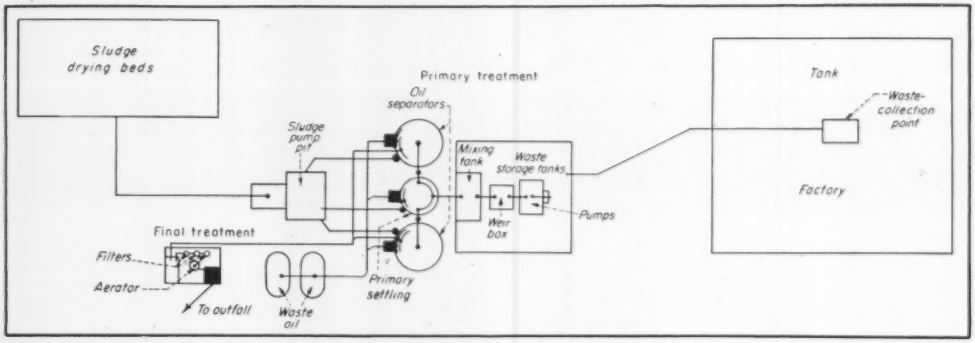
Laundered wastes with oil mostly removed go on for final treatment in a separate building. There, filter-supply pumps feed three pressure sand filters. Filtered fluid cascades off a step aerator. Chlorine is injected and from the retention tank final effluent flows in a gravity line to the outfall.

Samples are taken at the retention tank outlet as a check on treatment. If too high an oil content or bacteria count are recorded, the whole flow could be returned for complete retreatment.

Controls are as automatic as prac-

STRICT LIMITS ON GM'S EFFLUENT

25 ppm turbidity
50 ppm color
10 ppm BOD
1,000 coliform bacteria per 100 ml
Zero free acid
6.5 to 10 pH range
No visible oil
No solids
No inflammables
0.15 ppm cyanides
50 pp billion phenols
250 ppm chlorides as Cl
90 deg F



THE FULL TREATMENT—Oil separation was not enough. There were campers and fish downstream. Effluent is treated chemically, filtered, aerated, chlorinated.

ticable, in the interest of operating economy. Also, power costs are minimized by installation of twin sludge separating units that can be used singly on low flows—rather than having a single unit of double capacity operating continuously.

Cost of operating the treatment works will be borne by GM. Cost of building the treatment works was paid by Uncle Sam directly, since it is a permanent addition to a plant that will revert to the federal government after its present use.

The plant was designed and built by Argonaut Realty division of General Motors for Cadillac Motor Car Division—holders of the tank production contract. General contractor on its construction was Birmingham Construction Co. of Birmingham, Mich. John Kremer of Cleveland supplied the information on which this article is based.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Engineers reports to owner

A subcontract provided that payment would be made to the subcontractor when the prime contractor was paid for the work done by the subcontractor.

The engineers employed by the corporation for which the work was being done had full knowledge of this agreement. After the subcontractor had completed its part of the work, the engineers refused to issue a certificate approving payment to the prime contractor for the work in question. The subcontractor then brought an action against the engineers and the corporation for which the work was being done to recover the amount allegedly due under the subcontract. This action was based on the theory that the conduct of the engineers in refusing to issue a certificate approving payment for the work induced a breach of the contract with the prime contractor and prevented the subcontractor from receiving payment for the work done.

The attorneys for the engineers moved to dismiss the complaint as against them. The court denied this application.[1] The appellate court,[2] however, reversed this decision and granted the motion to dismiss the complaint as against the engineers. The appellate court held that reports by the engineers to the one who employed them as his representatives and overseers during the performance of the construction work is privileged and confidential. Hence it cannot be made the basis for a claim by a third person who has no contractual relationship with the employer or the engineers.

(1) Unity Sheet Metal Works, Inc. v Knappen, Tippetts, Abbett Eng. Co. et al., 101 N.Y.S. 2d 1000; See ENR Sept 13, 1951, p 48.
(2) Unity Sheet Metal Works, Inc. v Knappen, Tippetts, Abbett Eng. Co., et al., 108 N.Y.S. 2d 919.

Rights of subcontractor

Extras performed by a subcontractor at the direction of the owner, in the absence of any agreement as to amount or mode of payment therefor, must be deemed incidents of a cost-plus contract between the subcontractor and general contractor. Under such circumstances, the subcontractors claim to a lien is restricted to the amount due and unpaid from the owner to the general contractor.[1]

Under the above circumstances, the subcontractor can include in an action to foreclose a mechanic's lien, an action for a money judgment against the general contractor; and he is entitled to such judgment if there is money owing to him from the general contractor, even though he may not be entitled to a lien.[2]

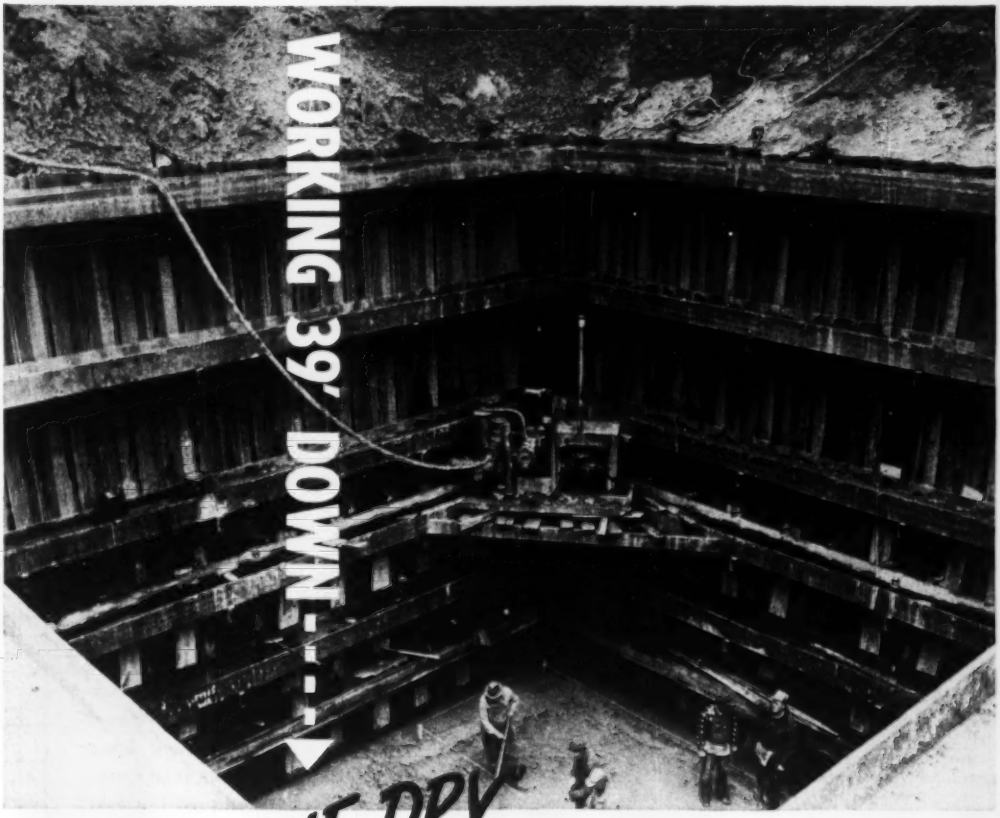
(1) Soil v Camardella et al., 277 App. Div. 1004, 100 N.Y.S. 2d 187.
(2) Nelson v Schrank, 273 App. Div. 72, 75 N.Y.S. 2d 761.

Monthly estimates

A contract was entered into for the performance of work on a unit-price basis. The specifications that were incorporated in the contract provided among other things, that all slate or shale that can be removed without blasting shall be classified as loose rock. The final estimate as prepared by the engineer allowed 403 cu yd as loose rock. The contractor claimed that this amount should have been 6,182 more than that allowed in the estimate, the difference being classified as shale, the unit price for which was less than half of the price for loose rock. The court sustained the contractor's contention.

The court held the fact that the contractor had accepted monthly estimates based on the same classification as that made in the final estimate did not bar his right to insist that the excavation be properly classified, in view of the fact that the court found that the contractor had no knowledge of the erroneous classification at the time he accepted the monthly estimates.[1]

P. 970.
(1) Cook v Green River Mut. Irr. Co., 121



"IN THE DRY"

A Moretrench Wellpoint System keeps 31 feet of water from causing trouble on this deep excavation for a plating pit in Michigan. Material consists of very fine, silty sand and hard clay.

Wellpoints so effectively reduced hydro-static pressure that the use of I-beam whalers was sufficient, eliminating cross bracing. Another time and money saver.

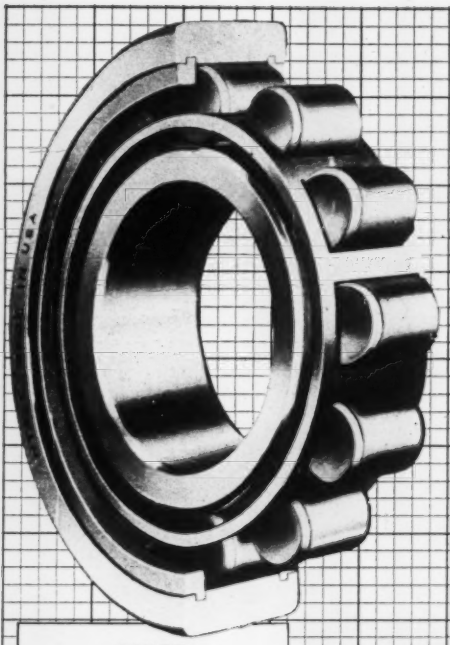
CATALOG ON REQUEST

Progress on a wet job depends on the pumping system. That's why experienced contractors again and again order Moretrench for action — "in the dry".

MORETRENCH CORPORATION

90 West St. New York 6 | 4900 S. Austin Ave. Chicago 38, Illinois | 7701 Interbay Blvd. Tampa 9, Florida | 315 W. 25th St. Houston 8, Texas | Rockaway New Jersey

Canadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario



HYATT
STRAIGHT CYLINDRICAL
ROLLER BEARING

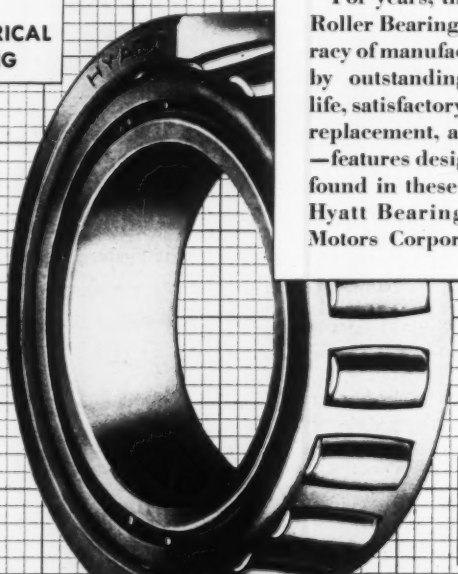
For Flexibility Of Design

When the design calls for greater radial bearing capacity in limited space, Hyatt Hy-Load Roller Bearings can usually provide the solution.

Manufactured in a wide range of sizes, with ten distinct types, and three series of bearing widths, they permit considerable design flexibility.

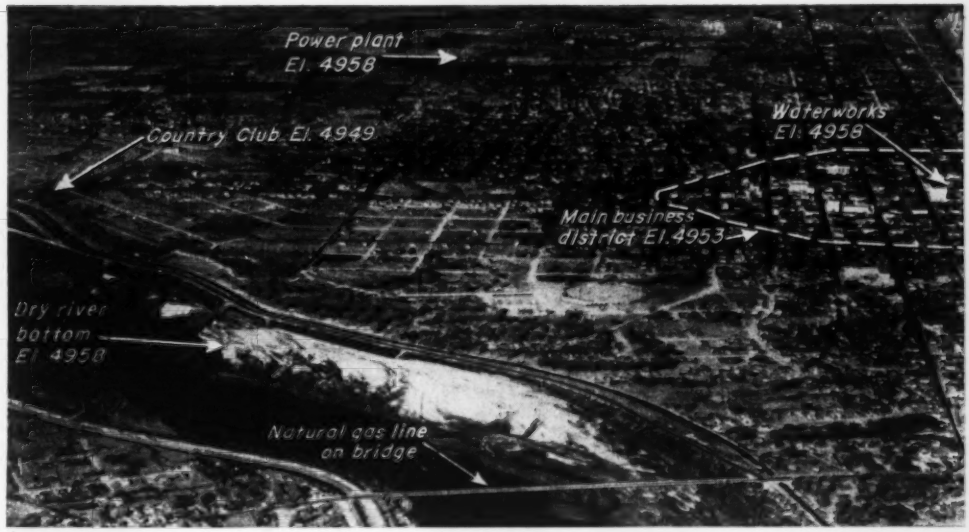
And for positions where both radial and thrust loads are involved or conditions of misalignment present, Hyatt Spherangular Roller Bearings are available in a number of production sizes.

For years, the correctness of Hyatt Roller Bearing design and their accuracy of manufacture have been proven by outstanding performance. Long life, satisfactory operation, infrequent replacement, and freedom from care—features designers look for—will be found in these dependable bearings. Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.



HYATT
SPHERANGULAR
ROLLER BEARING

HYATT ROLLER BEARINGS



AT ALBUQUERQUE most of the city, including the main business district (right center) lies on this flood plain of the Rio Grande. All of it is below the dry bed of the river (left foreground). Since this picture was taken in 1939 much of the open area near the river has been built up.

Sitting ducks along the Rio Grande

E. R. Harrington
Albuquerque, N. M.

IF IN THE SPRING OF 1951 someone had raised a great cry about the flood dangers to Kansas City, Topeka and Manhattan, Kansas, he might have been looked on as an alarmist who should be discouraged lest he hurt business. Yet by the end of July, 1951, the nation's most costly flood went roaring through those cities. The warning of the great 1903 flood in the Kaw River had largely gone unheeded. The general attitude appeared to be that if any community became rich enough and large enough its very size and wealth would successfully defy any future flood.

• **Flood history in the making**—In the light of what happened on the Kaw it may not be amiss to point out that a similar situation threatens along the banks of New Mexico's best known river, the Rio Grande. It is not a large river. Its greatest estimated discharge of the last century was not much over 100,000 cubic feet per second at Albuquerque, New Mexico. Probability charts show that a flood flow of 100,000-cfs can reasonably be expected about once every 100 years, while magnitudes of 50,000, 35,000 and 25,000 cfs can be expected about every 50, 25 and 10 years, respectively. The 200-year flood would exceed 150,000 cfs and the 500-year flood would go over the 200,000-cfs mark.

Perhaps these figures are not alarming when one thinks of the Kaw River's half million cubic feet per second in the 1951 flood, but the cities along the Rio Grande are much more vulnerable than are Kansas City and Topeka.

The Rio Grande starts with the mountain streams of southern Colorado, flowing southward to cut a deep canyon in the basalt flows of northern New Mexico. It picks its way from basin to basin in New Mexico, cutting through a series of narrows. Finally at El Paso, Texas, it swings to the eastward and makes its thousand-mile way to the Gulf of Mexico.

The great Elephant Butte reservoir a hundred miles upstream from El Paso gives some flood protection for the lower Rio Grande valley, but above this reservoir the towns in the river basins are sitting ducks awaiting the inevitable. Albuquerque, New Mexico, the fastest growing city in the United States, is the fattest sitting duck along the whole Rio Grande. Let us consider the future of this exposed city.

• **An exposed site**—Albuquerque is situated on the flood plain of the Rio Grande in central New Mexico. The flood plain is approximately five miles wide, and in the metropolitan district of Albuquerque more than a hundred thousand people live down on that flood plain.

There certainly is no comfort in knowing that the Rio Grande is an aggrading stream in which the channel is higher than the adjacent flood plain upon which the city rests. The silt content of the river water averages in excess of 10%. For the average flow of the river, this represents fifteen tons of silt passing through the city every second.

That is a lot of silt. Worst of all, part of it does not go through. Some is dropped in the stream channel, building it up to greater heights until now it is difficult to find a place in downtown Albuquerque that is not several feet below the level of the river even at low water. This situation gets worse each year.

The Rio Grande at Albuquerque is confined between low dikes of sand and clay. They are flimsy things especially when wet and under attack of river currents.

The Rio Grande has a fall of more than five feet per mile. When in flood it is swift enough to do great damage to dikes and levees. Engineers in charge of the city's dikes volunteer the information that they could not

possibly retain a flood as great as 30,000 cfs, the flood that could reasonably be expected about every 15 years.

A 50-yr flood or any larger one certainly would overtop and destroy the protecting levees and spread the waters over the flood plains now occupied by the city of Albuquerque and by lesser towns up and down the river. A 100-yr flood would cover downtown Albuquerque one-story deep and would drop a thousand tons of silt every second in its streets and flooded buildings. The 500-yr flood would up the river stage another story.

• Serious changes in the valley—The writer came to Albuquerque as a high school sophomore 35 years ago. The town was about one-eighth its present size. The river's channel then was 5 ft lower than at present, yet he saw a flood of 36,000 cfs go through part of the town in 1920. Since that time many disquieting things have happened. The old sloughs and swamps where he fished and hunted ducks have been drained and turned into housing areas. The river bed has risen 5 ft. A swanky residential area now occupies a low place where he has seen water 15 ft deep. Several school buildings have been built upon land that in the memory of living men was a part of the Rio Grande channel. To this we must add several factors which are most alarming.

First of all is the tremendous growth of the City of Albuquerque during the last ten years, a growth which more than doubled its population, sending it up over the hundred-thousand mark. Some of the new people have availed themselves of high ground outside of the river flood plain, but most of them have built their homes and business places down below the level of the river. Some did this with a fine disregard of the flood certainty, but most of them did it through carelessness with no thought of asking even if a river were nearby.

Some of the people looked at the Rio Grande and found it anything but prepossessing as far as size was concerned. They promptly dismissed it as a threat and built their houses on its flood plain, all the while admonishing their Boy-Scout children to be careful where they pitched their tents when they went on a scouting trip in the mountains.

• Homes built in arroyos—With an equal disregard, other people built their houses in the beds of old dry stream channels (arroyos) coming into the Rio Grande on each side. As they dug basements and encountered boulders of granite weighing several hundred pounds they may have wondered, idly, how such boulders got there in quantity. A little observation would have shown them that the rounded boulders had been carried in from the mountains ten miles away by torrents down the very arroyos where their houses were being built. They either did not see this or they ignored it with the thought: "It would not dare hit my house. I am a taxpayer . . . I have influence. . . ."

THE RIO GRANDE rises in the mountains of southern Colorado and northern New Mexico. Its valley above Elephant Butte reservoir has little protection against large floods.

Those arroyos get hit every year or two and yet people still build in them. The choice duck pond of the writer's youth used to be replenished by such an arroyo about every year, but now that pond is occupied by several hundred houses. The area gets flooded every year or so, but still people build there just because there is no water standing there at the time and because everyone knows this is a dry country and therefore no one has to worry about any flood danger!

Half of the present citizens of Albuquerque have moved in during the last ten years. This ten-year period has been an excessively dry one without danger of floods. This has given the newcomers—and some of the old settlers—the dangerous idea that there has been a climatic change and that in the future there will be no possibility of flood damage. The writer has even heard seemingly intelligent people make such dangerous statements. This has led more and more newcomers to build their dwellings and business houses down on the Rio Grande flood plain where eventual ruin is certain.

The dangerous business of "follow the leader" goes on full speed. The leader built in an exposed position because he ignored danger or perhaps because he was ignorant of its presence. Others follow the leader because they figure that whatever cautions are necessary must have been investigated by that leader when he built.

• A small flood checked—In 1930 a small flood of about 20,000 cfs broke the dikes above Albuquerque and came into the northern part of the city. By an heroic bit of dike building, the flood was stopped before it went down through the middle of town. This was unfortunate. A small flood of that magnitude would have done comparatively small damage in Albuquerque—then less than one third

WATER CAME DOWN THIS STREET in 1930 during a small flood of about 15,000 cfs flow. It was stopped at this intersection by a hastily built sand-bag dike. Even the 25-year flood would send nearly three times as much water into the city.

THESE HOUSES stand in what once was a channel of the Rio Grande. It still is an emptying basin for several arroyos coming from the mountains in the background. A flood in 1914 left a lake here that did not dry up for more than six months.

its present size. Such a small flood would have made the Middle Rio Grand Valley "flood conscious," and some real flood-prevention work would have been undertaken and accomplished.

Unfortunately this small flood was stopped, and such a flood consciousness was never developed. Now a fair sized city lies in the path of future floods. Not only are the protective dikes no higher, but the bed of the river channel has been built up by silt and every year the city's condition becomes more perilous.

• **Good luck overdrawn**—As a college freshman at the Colorado School of Mines the writer went with that School's ROTC unit to the aid of Pueblo, Colo., when it was hit by the big flood in 1921. He remembers many things that happen to a flooded city: floating houses, box-cars and trees hammering at the remains of bridges; water swirling into the second stories of buildings; brush caught on the trolley wires of the street railway; mud 6 ft deep on the stage of the city auditorium; streets 2 ft deep in mud reeking of decayed food, dead live stock and an occasional human body. A city without lights, power, water or sewers. A city short of food and almost without hope.

It is not a nice thing to remember nor is it a nice thing to realize that the city of Albuquerque is madly setting the stage for a far greater destruction. We have overdrawn our account in the bank of good luck. One of these years we are certain to harvest the destruction so long overdue.

And when will it come? That we cannot say. Perhaps the greater 100-year flood will not come for a hundred years; but, then again, it may hit us this spring. A probability curve does not pick the specific year. To get the great flood which will cover most of Albuquerque to a depth of 20 ft we need a combination of conditions: A record breaking snow fall in the mountains of Colorado; a large snow fall in the mountains of New Mexico; a late spring coupled with a sudden and prolonged spell of warm weather; a few suitable cloudbursts on the watersheds of the feeder streams and arroyos; a warm rain on the snows of the mountains.

We have had these things singly and have been able to carry on through the difficulties attendant to them. There is no reason why we might not get them all at the same time, and when we do our 500-year flood is a reality and "Good-bye Albuquerque"!

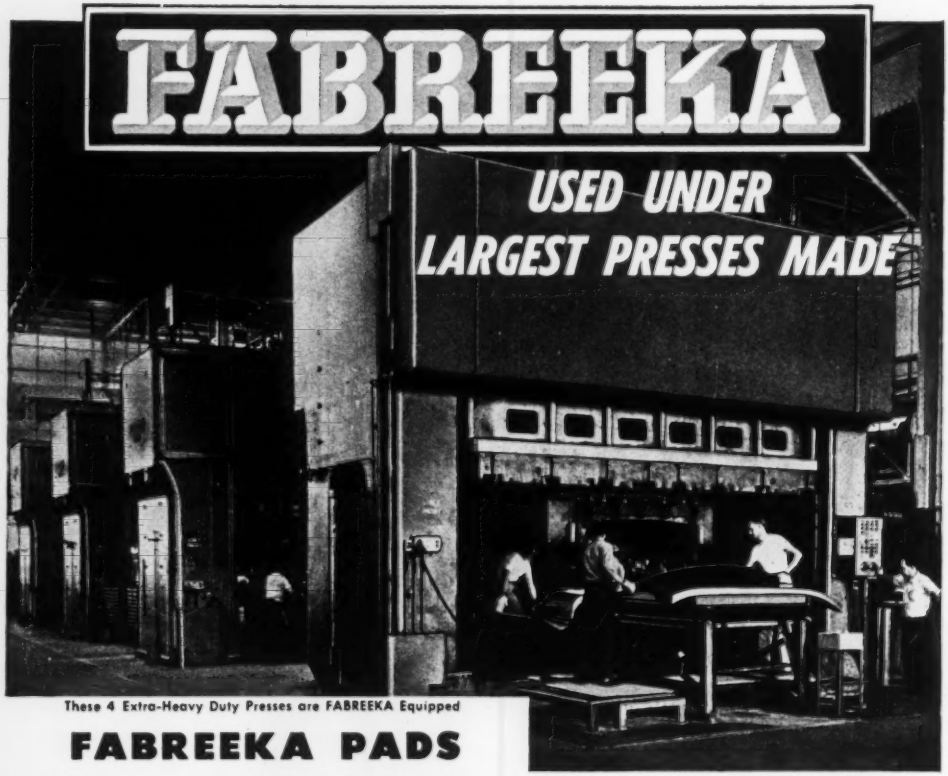
• **The snow has come**—At the present writing it is snowing in the mountains of New Mexico and Colorado. The snow pack in those mountains is the highest that it has been for almost half a century. If we should get that warm spring rain and a few assisting cloudbursts our great "year-flood" is here. Down on the flood plain of the Rio Grande the city of Albuquerque had its waterworks, sewage disposal plant, and its sources of light and power. Its gas line is attached to a bridge which would go out with a small flood. The fastest growing city in the United States is a *sitting duck* just waiting for the inevitable.

• **A date long overdue**—But why doesn't someone do something? That is the cry of a few who are appalled by the certainty of the future. The Middle Rio Grande Flood Control Association is trying to arouse concern over this problem, but is being met by the apathy of "business as usual." Some people look at a dry river and laugh. Some say: "Let the government take care of it. They will take care of us."

There is a general willingness to be protected at the expense of the public purse. As yet there has been no movement for the Middle Valley to protect itself at its own expense such as was done successfully by the Miami Conservancy District in Ohio. A comprehensive study has been made by the U. S. Engineers and a small part of the program has been started. But, as yet, Congress has not seen fit to appropriate sufficient money to make more than that small start.

History repeats itself as far as flood control is concerned: We get the big flood and then prepare for it afterwards. The Middle Rio Grande and its largest city, Albuquerque, have a date with destiny and the date is long overdue.

FABREEKA



These 4 Extra-Heavy Duty Presses are FABREEKA Equipped

FABREEKA PADS

ABSORB IMPACT SHOCK AND ISOLATE TRANSMITTED VIBRATION

UNDER HUGE PRESSES

HAVING 600 TONS DEAD LOAD RATING

These 200-inch presses are mounted on FABREEKA to protect against shock and vibration. Pads are 28" X 17" X ⅝". Each press weighs one million lbs., and with an average die has a maximum load rating of about 600 tons. The FABREEKA Pads are installed on top of the concrete foundation beneath the press base, and are stressed to 600 lbs. per square inch.

These presses are only one of a wide variety of machines under which FABREEKA Pads are being used successfully to reduce impact shock and vibration.

FABREEKA is designed to give years of service under severe operating conditions.

WHAT FABREEKA DOES AS A MOUNTING FOR HEAVY EQUIPMENT

- Absorbs impact shock and isolates transmitted vibration.
- Insures even distribution of the bearing load.
- Protects Concrete Foundations, preventing chipping and breaking of concrete.
- Prolongs life of machinery and buildings.
- Reduces Noise. Prevents structural fatigue. Helps maintain alignment. Eliminates grouting.
- Reduces maintenance and breakdowns.

Write for Engineering Data

Proven by Over 33 Years Experience

FABREEKA PRODUCTS COMPANY
INCORPORATED
222-A SUMMER STREET, BOSTON 10, MASSACHUSETTS
NEW YORK CHICAGO DETROIT SPARTANBURG
PHILADELPHIA PITTSBURGH OAKLAND

POINTING the WAY To Continuing Prosperity

The set of figures in the middle of this page is news of high importance to every American.

In effect, it says that there is no basis in fact for all this talk about a collapse of capital expenditures plunging us into a depression following the industrial build-up for defense.

Such talk assumes that without defense orders business would spend relatively little for new industrial plant and equipment. The figures below show that that assumption is not justified.

A Record in '52

As was expected, their plans call for another record-breaking volume of capital expenditures by business in 1952. But, as many did not expect, the McGraw-Hill survey also discloses plans for very heavy capital expenditures in each of the three years following. Expenditures now planned for those years are, to be sure, lower than those planned for 1952. But the significant fact is not that they are lower. Experience shows that plans made several years ahead always overlook many expenditures that are needed later.

The significant fact is that the expenditures already planned for 1953-55 are so high. For example,

BUSINESS PLANS FOR NEW PLANTS AND EQUIPMENT (Millions of Dollars)

	Actual Spending 1950*	Actual Spending 1951*	McGraw-Hill Survey			
			Planned	— Preliminary Plans —		
			1952	1953	1954	1955
Manufacturing	7,491	11,141	12,921	10,028	8,525	8,194
Mining	684	806	943	415	321	358
Railroads	1,136	1,564	1,642	1,248	1,117	1,002
Electric & Gas Utilities**	3,298	3,676	3,948	3,360	3,204	2,748
Other Transportation & Communications	1,392	1,592	1,721	1,671	1,943	1,839
ALL INDUSTRY	14,001	18,779	21,175	16,722	15,110	14,141

*U. S. Department of Commerce
**Electrical World (A McGraw-Hill publication) and American Gas Association.

The figures come from the fifth annual McGraw-Hill survey of business plans for new plant and equipment. Companies were asked to report through that survey not only their plans for 1952, but plans they now have in hand for capital expenditures in 1953, 1954 and 1955, provided the money to carry them out can be obtained.

those now planned for 1955 would be higher than those of 1950, which, at that time, were second highest in our history.

If these plans are carried out we shall have an essential element of continuing prosperity. Sustained expenditures for capital expansion and betterment account directly for a large share of our employment and consumer income. Moreover, consistent modernization of industrial plant raises production efficiency and brings more and better goods and services within reach of more consumers.

It is not to be expected, of course, that we can come down from the peak of the defense boom without readjustments in some sectors of business. But if capital expenditures by business are carried out on the scale now planned, we shall be able to take any necessary readjustments in our stride, and continue to increase our industrial strength.

From V-J Day to the end of this year, manufacturing industries will have spent over $60 billion for new industrial plant and equipment. This is more than the value of all the plant and equipment these industries had on their books at the end of World War II. It is this heavy outlay that causes some, assuming most postwar plans for industrial expansion and modernization will be completed, to fear a collapse of capital expenditure.

Plans to Go Ahead

But American industry still has plans to go right ahead expanding and improving its facilities. This was the most striking single finding of this year's survey.* It disclosed also that after 1952:

– 83 per cent of the companies answering the survey are planning substantial further modernization.

– 48 per cent will need more capacity to make their present products.

– 33 per cent plan additional capacity to make new products.

It cannot be too strongly emphasized, however, that these plans represent what American industry *wants* to do. They are a concrete expression of hope and aspiration. As such they are extremely important, for they dispose of the idea that business considers the job of expanding and improving its facilities as finished, or anywhere near finished.

But the plans carry no guarantee of accomplishment. If they are to be realized, business must have the funds to carry them out. There is no assurance that the money will be available if the present level of corporation taxes is continued. Eight out of ten companies, according to the McGraw-Hill survey, will rely entirely on profits and reserves to finance their 1953-55 programs. So, in calculating their programs for these years, the companies were asked to assume relief from "excess profits" taxation.

Federal taxes now take at least 52 per cent of a corporation's profits, and 82 per cent of any profits in the so-called "excess profits" bracket. Despite this drain on their funds, companies are able to finance their 1952 programs because (1) they are borrowing heavily, and (2) many of them are getting government loans or special tax concessions on new facilities installed for defense purposes. But these are emergency aids.

Only Two Ways

When the present defense program tapers off, there will be only two ways by which business can possibly increase its principal source of funds for new plant and equipment. One way is to make more profits before the tax collector takes his cut. And the only way many companies, already operating at capacity and high efficiency, can do that quickly is by raising their prices. That is an unpopular method. Also, with the return to more competitive markets, it might be self-defeating.

The other way is for the federal government to release its strangle hold on business profits. The so-called "excess profits" tax – the 82 per cent tax which is really a tax on business growth – should be repealed, effective January 1, 1953. And a cut in the basic tax of 52 per cent on all corporate profits should come not much later. That is by all odds the most important single step toward assuring that business plans already made for capital investment in 1953, 1954 and 1955 are carried out. It is the most important single step toward sustaining our present prosperity.

Through its plans for continued expansion and improvement of its facilities, American business clearly points the way to avoid the depression that so many have feared – and the Communists have so ardently hoped – would follow the peak of defense mobilization. It will be a tragedy for our country and for Americans in every walk of life if we do not insist that business get the chance to follow this wise and constructive course.

McGraw-Hill Publishing Company, Inc.

***Note – A copy of the full report of this survey can be obtained by addressing: Department of Economics, McGraw-Hill Publishing Co., Inc., 330 West 42nd St., New York 36, N. Y.**

LIGHTNING STRIKES... A WAREHOUSE BURNS

But Protection through AFIA Quickly "Puts Out" the LOSS!

A CRASHING bolt of lightning splits a black sky over Rio . . . A warehouse bursts into flame, burns to the ground—and the first foreign venture of an expanding American firm faces disastrous loss!

New at foreign operations—separated by a continent from the loss—confused by a maze of foreign laws, currencies, language . . . *No wonder the home office was deeply concerned about coverage!*

A quick phone call to the firm's local insurance agent brought relief all around. Protection WAS in effect; fire and extended coverage through American Foreign Insurance Association — protection against lightning and fire, PLUS hail, windstorm, explosion, motor vehicle damage, falling aircraft, many other hazards, *all in one contract.* The loss was investigated quickly on the spot—settled promptly—paid in American dollars as the policy specified.

That here-at-home handling for risks abroad is a great, modern-day advantage for American business. A pioneer in this amazingly efficient foreign protection, AFIA can arrange to cover *your* risks, *whatever* they may be (except life)—and *wherever* located.

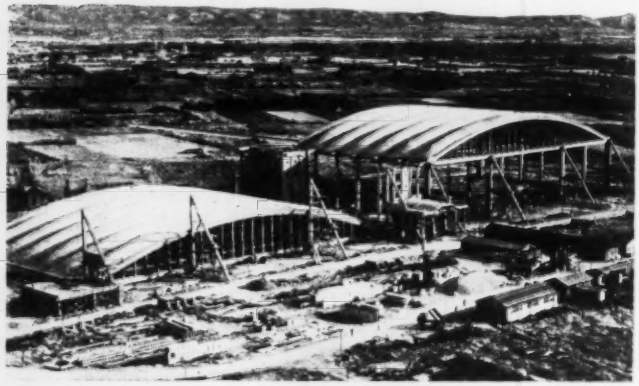
Have your agent or broker get full information on any specific risk—through AFIA!

AMERICAN FOREIGN INSURANCE ASSOCIATION

161 WILLIAM STREET • NEW YORK 38, NEW YORK

CHICAGO OFFICE: INSURANCE EXCHANGE BUILDING, 175 WEST JACKSON BLVD., CHICAGO 4, ILLINOIS
SAN FRANCISCO OFFICE: MILLS BUILDING, 220 BUSH STREET, SAN FRANCISCO 4, CALIFORNIA
WASHINGTON OFFICE: WOODWARD BUILDING, 733 15th STREET, N. W., WASHINGTON 5, D. C.

AN ASSOCIATION OF 25 AMERICAN CAPITAL STOCK FIRE, MARINE AND CASUALTY INSURANCE COMPANIES PROVIDING INSURANCE PROTECTION IN FOREIGN LANDS



Corrugated concrete roofs built on the ground and raised 63 ft by jacks to the top of supporting columns are feature of . . . . . .

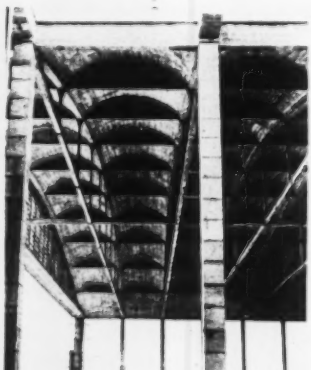
Unique hangars for Marseilles

THE construction technique of building floors or roofs on the ground and then raising them to final position by jacks (ENR June 29, 1950, p. 38) is being carried to new and spectacular dimensions on some hangars being built at Marignane, France, the airport of Marseilles 8 miles northeast of that city. Here, concrete roofs, which cover 3½ acres each and weigh 4,300 tons, have been built on the ground and successfully raised 63 ft to the tops of their supporting columns by sixteen 300-ton jacks at a rate of about 3 ft a day.

The roofs themselves are also unusual, being a series of concrete barrel arches in a thin-shell design, giving the overall appearance of a huge curved and corrugated sheet. Both the design of the roof and the construction procedure used were selected for economy reasons. Reinforcement in the roof is slight, thereby saving steel, while a minimum of falsework is required, and work goes forward more speedily when operations are at ground level.

Marignane airport is being enlarged and improved to take the place of Istres airport developed for international service during the war and well known to American fliers. But Istres is 16 miles farther from the city on the opposite side of the Lake de Berre from Marignane, which has now become the principal air terminal of the Mediterranean area and the fifth in size in Europe after London, Paris, Rome and Amsterdam.

The concrete hangars are projected in three sets of two each. The first pair is now about ready for use. Each hangar has a span of 334 ft and is 193 ft long. In addition the two hangars of each pair are separated and connected by a service building 61.5 ft wide. The clear height of the hangars is 63 ft, and since the rise of the roof arches is 43 ft, the maximum height attains 106 ft.



UNDERSIDE VIEW of roof shows main arch ties and barrel arch diaphragms. Supporting columns are 40 in. square.

The roofs are made up of six barrels, each of about 32 ft span and springing from the main arch ribs. The rise of these barrel arches is 7¼ ft, and their shell thickness is 2.4 in. They are stiffened at about 32-ft intervals by diaphragms.

The main arch ribs are tied across their 334-ft span by beams supported by hangers from the ribs at the same 32-ft spacing as the shell diaphragms. The tie beams, designed to exert a tension of 400 tons, consist of high strength (100,000-psi) steel rods encased in concrete prestressed for temperature changes.

Stability of the building under wind loads is assured by four buttress frames placed perpendicular to the back of the building, as shown in one of the accompanying views.

La Société des Entreprises Boussiron of Paris developed the design and built the hangars.

Germans complete new bridge over Rhine at Cologne

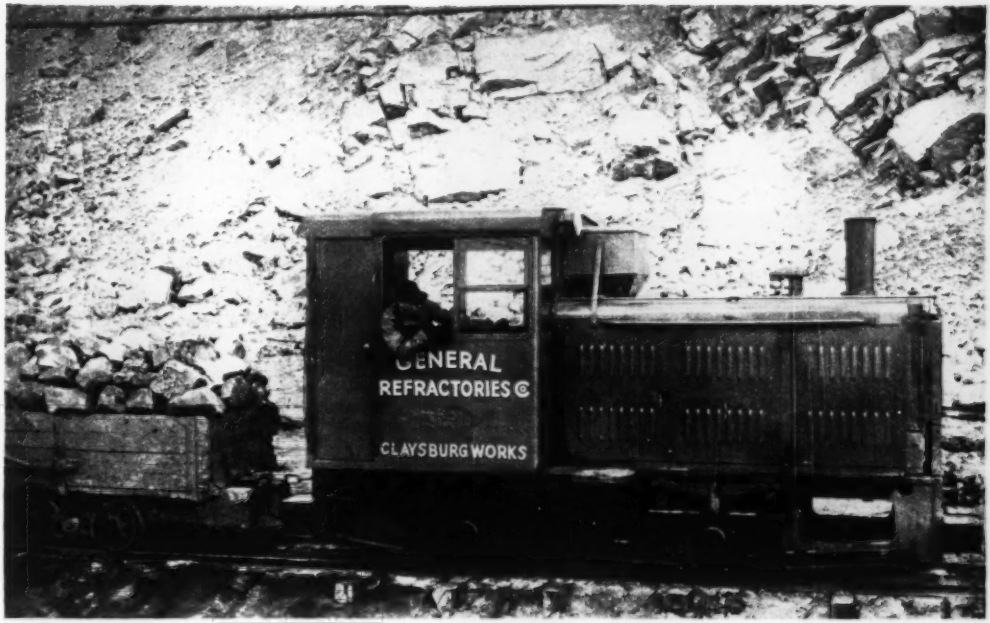
(McGraw-Hill World News)

Before the war, the Cologne-Mulheim bridge over the Rhine was world famous as one of the first, and the longest (1,033 ft main span), self-anchored suspension bridges ever built. Destroyed during the war, it has now been replaced by a suspension structure on the same piers but with shore anchorages. The new bridge also has the same widths of road, bicycle path and sidewalk—51.5 ft, 5 ft and 10 ft, respectively—but is designed for a 60-ton load as compared with the 24 tons used in the original structure.

An outstanding feature of the new Cologne-Mulheim Bridge is the use for the first time of a steel plate roadway consisting of a ½-in. thick plate reinforced by closely-set diagonal and longitudinal fins, and given an asphalt wearing surface of 2 in. The steel roadway makes possible the elimination of all lateral bracing between the stiffening girders other than the floorbeams. It also permits a reduction of dead load, compared with the old bridge, from 220 to 120 lb per sq ft, reflected in a 25 percent saving in steel —5,800 tons against 12,900 tons.

Another significant feature is that the suspender cables are not attached to the stiffening girders (which are

(*Continued on page 55*)



It's a challenge that PLYMOUTH can answer!

There's rough going for this 12-ton narrow gauge Plymouth Locomotive—hauling ganister at the Claysburg quarry of General Refractories Company, Philadelphia, Pennsylvania.

Rough going—because this rugged switcher is charged with hauling 8 to 14 loaded cars over four miles of mountainside track, around 25° curves, up and down a 5% grade.

But it's a challenge that Plymouth can answer —*with power and economy to spare!*

"Our Plymouth is perfect for the job," says H. F. Greene, Assistant General Works Manager. "Maintenance is low, efficiency has been increased, and definite savings are being made."

Operators in every branch of Industry have improved switching and hauling operations with Plymouth Locomotives. Find out now how Plymouth can help cut your costs. Completely new catalog describes 3-ton to 70-ton models . . . gasoline, Diesel, Diesel-electric . . . narrow and standard gauge . . . mechanical and hydraulic drive; send for your free copy today! PLYMOUTH LOCOMOTIVE WORKS, Division of The Fate-Root-Heath Company, Dept. A-4, Plymouth, Ohio.

PLYMOUTH LOCOMOTIVES

PLYMOUTH LOCOMOTIVE WORKS, DIVISION OF THE FATE-ROOT-HEATH COMPANY, PLYMOUTH, OHIO

NOW!

Speeds all these jobs— and many more!

1. Fastening wood sleepers to concrete floor slab.
2. Hanging steel sash and door bucks to concrete and brick.
3. Anchoring stadium, theatre and church seats to concrete or brick.
4. Fastening wood furring strips to concrete for attachment of metal lath.
5. Anchoring wood plates to concrete floors and ceilings for setting partitions.
6. Hanging radiator housings to concrete or brick.

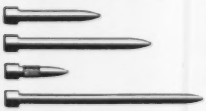
REMINGTON STUDS FOR ANY JOB

Genuine Remington studs are designed for specific fastening jobs. They are made of special hardened steel alloys permitting pull-out resistance as high as 2 tons, depending on the stud used. These studs were developed by Remington after exhaustive testing for hardness, strength and profile.

Cartridges are available in 5 different power loads, each clearly marked by colored plastic heel caps. These tough heel caps permit instant assembly of any cartridge with any Remington stud. Easily removed from the stud after driving, the heel cap also protects the thread of the driven stud.

EXTERNAL THREAD

STANDARD HEAD



BREAK-OFF HEAD

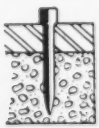
INTERNAL THREAD

Only Remington studs are identified by this target trademark on the head—it's your assurance of safe, dependable fastening.

It's fast, easy and safe to operate The Remington Stud Driver

Simply hand-assemble stud and power cartridge, load as a unit in easy-to-open Remington Stud Driver, and close.

Then press loaded Stud Driver firmly against surface, depress safety lever, and pull trigger.



Explosive charge imbeds stud solidly. Open Stud Driver with a twist of the wrist, eject empty shell, load next stud. Whole job takes seconds!

Do your construction fastening up to 100 times faster with the

NEW CARTRIDGE-POWERED MODEL 450

REMINGTON STUD DRIVER

and do it safely!

LOOK AT ALL THESE FEATURES

COMPACT AND PORTABLE—Weighs only 5½ pounds, ideal for scaffold, ladder, overhead work, inaccessible places. Comfortable to use in any position.

SPEED—One man can set up to 5 studs per minute, as much as 100 times faster than other methods. Sets stud at whatever depth is required up to 2¾ inches, depending on material.

ELIMINATES INVESTMENT in outside power source—Self-powered. Especially useful in isolated places.

FOUR WAYS SAFE—Plainly visible red dot indicator shows when it's cocked; safety lever must be depressed before and during squeezing of main trigger; permanently attached safety shield must be compressed against work before Stud Driver will operate. Stud Driver will not operate if tilted at more than a slight angle. Slight recoil. Low noise level.

RUGGED—All working parts of the Stud Driver are made of heat-treated alloy steels, housing of strong, light weight aluminum that carries no operating stress. Lining of safety shield is a solid block of tough, resilient Du Pont neoprene.

PRICE for Model 450 Remington Stud Driver complete in rugged steel carrying case—only $119.50.

Firmly fastens steel or wood to concrete or steel *in seconds!*

With the amazing new Remington Stud Driver you can set fastening studs up to 100 times faster than with conventional methods . . . and cut costs, too. This revolutionary fastening tool easily sets as high as 5 studs per minute . . . with no outside power source—no other equipment needed!

Easy to operate, the Remington Stud Driver weighs only 5½ pounds. It's compact, rugged and safe! With one lightning-fast operation, this self-powered tool firmly fastens steel or wood structural pieces and fittings to concrete or steel surfaces . . . a squeeze of the trigger and the job is done!

Test-proved to be the world's finest and speediest fastening system, the Model 450 Remington Stud Driver is made by Remington Arms Company, Inc., *America's oldest and foremost sporting arms manufacturer.* To obtain detailed information on this time- and money-saving tool, and for the name of your nearest distributor, fill out and mail the coupon below.

"If It's Remington—It's Right!"

Remington

DU PONT

Remington Arms Company, Inc.
Industrial Sales Division
934 Barnum Ave., Bridgeport 2, Connecticut

I am interested in obtaining descriptive literature on the Model 450 Remington Stud Driver.

*Name*_____

*Firm*_____

*Position*_____

*Address*_____

*City*_____ *State*_____

Four-Lane Road in Pennsylvania Coal Region

Bethlehem Reinforcing Bars used in railroad bridge that spans 48 ft of highway. Notice lane of completed pavement in left background.

Checking the blueprints. *Left to right:* J. D. Montgomery, superintendent for F. D. Kessler, Inc.; Thomas Glaudel, junior inspector, and Adolph Kerewicz, resident engineer, both of Pennsylvania Dept. of Highways.

Continuing its road-modernization program, the Pennsylvania Department of Highways recently authorized relocation of Route 29 between Hazleton and Tamaqua. The new road is four lanes wide and relatively free of turns. F. D. Kessler, Inc., Northumberland, Pa., was the contractor for the 3¼-mile section pictured here. Bethlehem furnished bar mats, dowel units and reinforcing steel.

Two men place Bethlehem Dowel Unit quickly and easily. Unit is designed to help solve the load-transfer problems caused by heavy wheel loads.

Bethlehem Hinged Bar Mat is handled by only two men. With bottom section placed, hinged portion needs but slight push to fall into position.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

STEEL FOR HIGHWAYS

Dowel Units • Reinforcing Bars • Bar Mats • Guard Rail
Guard Rail Posts • Wire Rope and Strand • Pipe
Hollow Drill Steel • Spikes • Bolts and Nuts
Timber Bridge Hardware • Tie-Rods
Sheet- and H-Piling • Fabricated Structural Steel

BETHLEHEM STEEL

International . . .

NEW Cologne-Mulheim Bridge over Rhine features continuous stiffening girders and suspender cable attachment to the sidewalk brackets instead of to the girders.

continuous at the towers and on the inside of the legs) but connect to the sidewalk cantilevers at a point 4 ft outside the stiffening girders. By this arrangement the floorbeams are permitted to be 8 ft shorter than would otherwise be the case. The resultant saving in steel plus that provided by the lightweight floor permitted the new bridge to be built with only 58,000 tons of steel compared with 12,900 tons for the original structure.

Each cable of the bridge consists of 37 locked-wire strands 2½ in. in diam. assembled in hexagon-shape.

The main span of the bridge was assembled from prefabricated deck sections lifted into place by two floating cranes. Each section had a length of 108 ft and a weight of about 250 tons.

The foundations were started in October, 1949. Steel erection was carried out from July, 1950, to June, 1951, and the bridge was opened to the public on Sept. 8, 1951.

Engineers may develop new "Garden of Eden"

The New York consulting engineers, Knappen-Tippetts-Abbett-McCarthy have been commissioned by the Development Board of Iraq to make a study and prepare a report on the best method of utilizing the waters of the Tigris and Euphrates rivers for irrigation and navigation.

These two large rivers originate in Turkey, flow through Syria and traverse Iraq from the northwest to the southeast for 600 miles. The valleys are nearly parallel. The southerly area between the rivers is reputed to have

(Continued next page)

NEW TILTING TRAILER for 5th wheel tractors!

Easily loaded and unloaded in 5 min. by 1 man!

Here at last is a *practical* heavy-duty tilting trailer, embodying the famed La Crosse *"double-strength" gooseneck,* for hauling big trenchers, shovels and other equipment behind standard 5th wheel tractors. Eliminates need for skids and blocking . . . saves hours of labor on every move. Operator simply tilts trailer platform to ramp position . . . drives or winches equipment into place . . . and he's ready to go in 5 minutes, with *platform automatically leveled and locked for traveling.*

Available in 14, 18 and 22 ton capacities, this new GTTA Tilt Top gives you all the advantages of job-proved La Crosse construction, including: "uni-built" subframe, hydraulic cushioned platform control, "walking beam" axle supports, big constant rise S cam brakes, and extra wide base rims for longer tire life. Write today for complete details, including facts on La Crosse *draw-bar-type* tilt trailers, and custom-built La Crosse low beds up to 67 tons capacity.

Check Today!

LC-24

LA CROSSE TRAILER CORPORATION, La Crosse, Wis.

Rush complete information on La Crosse trailers:

☐ Gooseneck Tilt ☐ Draw-bar Tilt ☐ Standard Low Bed

☐ Send name of nearest La Crosse Distributor.

☐ We may buy a ..... ton trailer about ..... (date)

Name..... Title.....

Employed by.....

Address.....

City..... State.....

LA CROSSE

America's Favorite LOW BED TRAILER

TWO GREAT VIBRATORS
FOR GENERAL CONCRETE CONSTRUCTION!

Model FS-6A. Now furnished with a 6 H.P. engine, providing plenty of reserve power under all conditions, and vastly improved power take-off. Vibrator frequency (up to 7500 VPM) and amplitude are carefully balanced for maximum progress and thorough consolidation. It is available with 3 vibrator heads, for thick or thin sections. Shafting is furnished in 7′ and 14′ lengths up to 28′. Quickly adaptable to concrete rubbing, wet or dry, and drilling. Built to stand severe usage. By any comparison, it's the finest engine-driven vibrator on the market and the best buy! Complete details on request.

The

POWERFUL, LIGHTWEIGHT
JACKSON
ELECTRIC VIBRATOR

2¼ H.P. MOTOR. FAST — RELIABLE
Has more than ample power for uninterrupted placing of the stiffest mixes, even when using the maximum length of shaft (28′). Provides 8,000 to 10,000 VPM. Built for trouble-free service.

PLUGS INTO LAMP SOCKET
Wherever 115 volt, 60 cycle, single-phase AC or DC is available.

EXTREMELY HANDY
May be had with any length of shaft up to 28′ and choice of 3 vibrator heads. And since it weighs but 50 lbs. it is ideal for thin or thick sections, high places and reaching those otherwise difficult-to-get-to spots. Also ideal for incasing structural members and similar applications.

QUICKLY ADAPTABLE TO CONCRETE RUBBING
Wet or dry, and drilling. A relatively inexpensive vibrator that will do a whole of a job.

SEE OUR CATALOG IN GILLETT'S HEAVY CONSTRUCTION 1951-52 FILED CATALOGS

VIBRATORS FOR ALL PURPOSES — FOR SALE OR RENT
at your Jackson Distributor. Mass concrete placement, highway, airport, and municipal paving. Asphalt and Soil Compaction. Power Plants.

ELECTRIC TAMPER & EQUIPMENT CO., Ludington, Mich.

International . . .

been the birthplace of the human race, but now it is largely desert or swamp land. The ruins of Babylon are on the Euphrates and of Nineveh on the Tigris, and on these rivers are the modern Baghdad. Mosul and Basra.

It is thought that if the engineers find it practicable to develop irrigation works and clear the rivers for navigation the agricultural and economic resources of this ancient land can be restored.

Large bank loan sought for Brazil development

The joint Brazil-United States Commission for Economic Development has approved several projects for much-needed improvements to Brazil's railways and power projects. It has agreed to support Brazilian applications to the International Bank for Reconstruction and Development and the Export-Import Bank for $75 million.

It is understood that J. Burke Knapp, president of the U. S. section of the commission, will support the applications at Washington hearings.

The projects include railway development at a cost of about $100 million, of which about $55 million will be for local labor and materials. This would be paid by the Brazilian government. The balance, for imported materials and equipment, will be asked for as a loan.

Recently President Vargas issued a retroactive decree drastically reducing the amount of profits foreign investors can withdraw from Brazil. It is thought that this policy may slow down Brazil's development by discouraging foreign investment.

Colombia employs U. S. construction firms

Morrison-Knudsen has signed a contract with the Ministry of Public Works of Colombia under which M-K and Colombian engineers Rafael Jaramillo and Luis Aurelio Diaz are to construct and pave 472 mi of highways in the two Santander Departments at a cost of about $10.6 million. The highways are Barbosa-Bucaramanga, Bucaramanga-Cucuta and Cucuta-Gamarra.

Road-building machinery for the job is already on its way. The monthly investment in building materials and wages is estimated at $280,000.

The Colombian government has also employed Lockwood, Kissler & Bartlett of Brooklyn, N. Y., to survey the feasibility of a tunnel for the railway between Cali and Buenaventura.

(*Continued on page 59*)

AFTER YEARS OF WEAR AND TEAR

Drawings are reclaimed without costly retracing

A case history based on the Buflovak Equipment Div., Blaw-Knox Corp., Buffalo, N. Y.—leading manufacturer of chemical and food processing equipment.

When any one of the 80,000 odd drawings in the Buflovak files is incapable of producing the sharp, clean blueprints needed for use in the shop . . . there's no redrafting problem.

"New drawings" are made from old ones—quickly, inexpensively with Kodagraph Autopositive Paper.

This revolutionary photographic intermediate material intensifies weak line detail, drops out stains, creases . . . produces fast-printing duplicate originals with dense photographic black lines on a durable, evenly translucent white paper base.

And the job's done at low cost because "Autopositive" is unique—a photographic paper that can be handled in ordinary room light . . . that produces positive copies directly—without a negative step. Also, it can be exposed in standard print-making equipment . . . processed in standard photographic solutions. *Convenience, economy*—from start to finish. And it's the same story in subsequent print production: Autopositive intermediates print back at practical, uniform speeds . . . and produce sparkling prints even after hundreds of "run-throughs."

Additional drafting time is saved in reproducing the prints which accompany customer orders. Extra detail must often be added before shop prints can be produced. So instead of redrafting, Autopositive intermediates are made . . . and then the new design is added to these print-making "masters." (If blueprints are received, they are reproduced on Kodagraph Repro-Negative Paper, which produces positive intermediates *directly* . . . and which is exposed and processed in same manner as Autopositive.)

Extra protection for Buflovak's more complicated and expensive drawings is obtained by reproducing them on Kodagraph Autopositive Cloth. This direct-to-positive printing photographic material produces extremely durable intermediates, which will remain intact year after year.

Kodagraph Reproduction Materials

"THE BIG NEW PLUS" in engineering drawing reproduction

Learn how Kodagraph Autopositive Paper is simplifying operations in thousands of drafting rooms. Write today for a free copy of "New Short Cuts and Savings" . . . interesting facts about companies you know . . . and a revolutionary new product *you should know.*

MAIL COUPON FOR FREE BOOKLET

eZ

EASTMAN KODAK COMPANY
Industrial Photographic Division, Rochester 4, N. Y.

Gentlemen: Please send me a free copy of your new illustrated booklet, "New Short Cuts and Savings."

Name_____ Position_____

Company_____

Street_____

City_____ Zone____ State_____

Kodak
TRADE-MARK

MINNEAPOLIS-MOLINE
MM
MODERN MACHINERY

WHEELERS

Here's the Tractor
Equipped and Engineered for ALL your jobs!

RTI 5000 pound and UTIL 12000 pound front axle capacities permit larger loads. These larger loads are practical because MM exclusive front-end design makes it possible to steer them easily.

FRONT AND REAR-END ATTACHMENTS—MAKE BOTH ENDS PAY. *Longer lasting, harder hitting from radiator to drawbar.*

RTI and UTIL Wheeler engines are MM built to give that extra heavy punch when you need it. They have special high-turbulence combustion chambers for progressive burning and longer power impulse. Coolant is first directed to critical heat areas by MM controlled cooling. For outstanding performance compare the low-speed, high-torque of these big, hard hitting MM quality leaders against ordinary high-speed, low-torque engines. Balanced weight and power of MM Wheelers is assured because the transmissions are built to handle full engine torque continuously in any gear. New double-disc brakes operate on the transmission counter shaft, have individual pedal control for rear wheels.

MM EXCLUSIVE FRONT-END CONSTRUCTION OFFERS YOU MOST SHOCK-FREE, EASIEST STEERING BUILT. YOU ARE ENTITLED TO SEE WHAT YOU BUY. COMPARE THESE POINTS FIRST—

- Special heavy Ross roller bearing steering gear.
- Needle bearings on steering knuckle pins and tie rods.
- Timken radial roller bearings support steering knuckle load.
- Timken wheel bearings—center line of tires inset over steering knuckle pins for pivot steering and elimination of road shock to steering wheel.

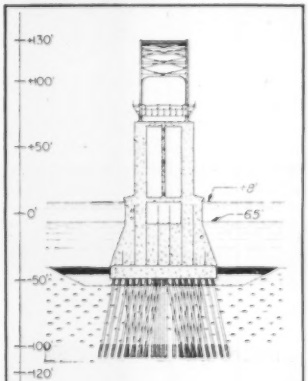
MINNEAPOLIS-MOLINE MINNEAPOLIS 1, MINNESOTA

TIED ARCHES with plate-girder stiffening below deck are the 336-ft main spans for Portuguese bridge. Service truss (background) was erection platform for each span. It rested on pier pedestals.—Eastern Pubs. photo.

Bridge improves Portuguese transport

Portugal's largest bridge has just been completed across the Tagus River, 12 miles above Lisbon. Replacing a ferry, it will speed highway transport between Lisbon and Oporto. Previously the nearest Tagus River bridge was 50 miles above Lisbon.

Principal features of the $3.5-million structure are five tied-arch spans each 336 ft long, with plate-girder stiffening below deck. Overall structure length is 4,015 ft.



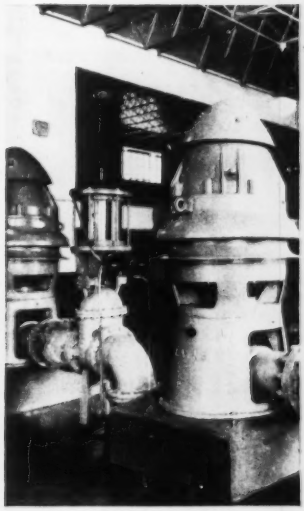
CONCRETE CAISSON was landed on cluster of filled tubular concrete piles to accomplish pier construction.

Span erection took place on a service bridge, which was floated to position and lowered onto steps on the piers. Main piers were built by landing concrete caissons pile clusters, filling the caissons with concrete and building the remainder of the pier above water. A 13-ft tide made both foundation and superstructure work hazardous.

Each pier site was prepared by dredging about 20 ft of soft riverbed silt and partly replacing it with sand. Hollow concrete piles were driven to a sand and gravel stratum below El. −100. The caisson, built in a nearby drydock, was floated to the site and lowered to the bottom, over the projecting piles. The working chamber was dewatered by air pressure, and filled with concrete to establish a pile cap. Then a protective blanket of clay, weighted with boulders, was placed around the caisson to prevent under-scouring. Caisson and pier shaft concreting completed the job.

• **Service bridge used**—The service-bridge method of erection was adopted because the depth to a solid stratum made pile-supported falsework uneconomical. Two 500-ton capacity pontoons with adjustable ballast compartments carried the 380-ton service

(*Continued on page 61*)



LAYNE PUMPS

for decatur, alabama

Nine Layne river intake and filtered water pumps have been installed to quadruple Decatur, Alabama's city water supply. Four of these short coupled vertical turbine pumps have a combined capacity of 4-million gallons of filtered water daily.

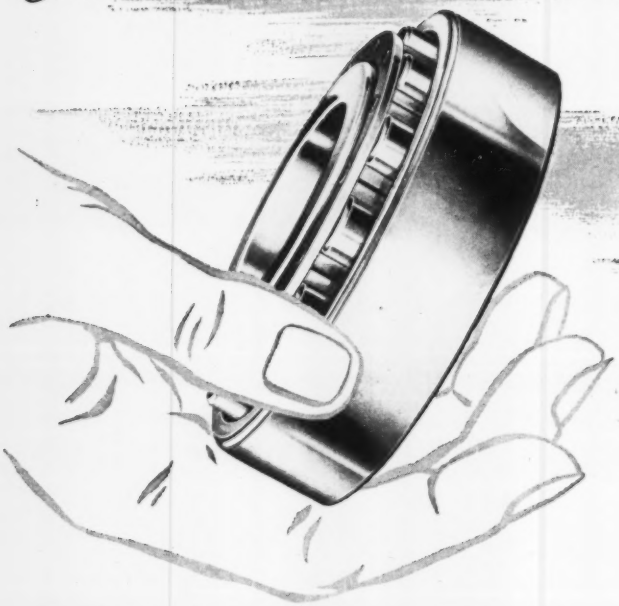
These self priming, space saving pumps are Layne designed and precision built to maintain peak operating efficiency. They are constructed of materials selected for durability and are rugged enough to give excellent service for the years to come.

Like the city of Decatur, a great number of other municipalities, factories, processing plants and chemical works have found Layne pumps to be exactly as described. All are engineered for the job they are to do . . . and all more than fulfill their performance obligations. For further information address

LAYNE & BOWLER, INC.
General Offices, Memphis 8, Tenn.

. . . Layne . . .
water wells
VERTICAL TURBINE PUMPS
WATER TREATMENT

Approximates Bronze-Retainer Precision



AT STEEL-CAGE COST...

Rollway's Tru-Rol Roller Bearings

Now—approach the trueness and long-life of a high-precision bearing for approximately steel-cage cost. Improve power efficiency and reduce preventive maintenance over ordinary bearings... while conserving the use of critical bronze. TRU-ROL enables you to do all this with only minimum variation from top bearing performance.

That's because Tru-Rol's contoured guide lips assure precision rolling . . . prevent roller skew with its long train of evils . . . sliding friction, end rub, power loss and reduced life expectancy. More—lubrication is evenly distributed over each roller, assuring a *thin* oil film that reduces heating and lowers friction torque.

Nation-wide Replacement Service

Rollway Bearings are available for replacement through authorized bearing distributors in principal cities. To locate, consult classified phone directories under BEARINGS.

SALES OFFICES

Philadelphia — Los Angeles
Pittsburgh — Cleveland
Houston — Chicago
Detroit — Boston

ROLLWAY BEARINGS

ROLLWAY BEARING COMPANY, INC., SYRACUSE, N. Y.

International . . .

bridge to place and carefully lowered it onto the piers' narrow shelves just above high water. A 7½-ton locomotive crane on the service bridge handled erection. When span load was transferred to permanent piers, the barges picked up the service bridge and moved it to the next location.

Contract time was 1,000 days. The work was a real example of European cooperation. Owner is the Portuguese National Road Board. Substructure and approach work were handled by: Sociedade de Empreitadas e Trabalhos Hidraulicos Lda., (SETH) Lisbon; Hojgaard & Schultz, of Copenhagen; and Kampmann, Kierulff and Sarild of Copenhagen. Dorman, Long & Co. Ltd., of Middlesbrough, England, did the superstructure. SETH and Dorman, Long collaborated in the design. The pontoons came from Rotterdam. Most of the labor was local.

Indian elections seen boost for U. S. investment

The final returns in India's first national elections—which resulted in a comfortable two-thirds majority for Premier Jawharlal Nehru's Congress Party—are viewed with cautious optimism by U. S. business men.

Observers on the scene look at the election results as an evidence of a steadying middle-of-the-road trend in Indian affairs that is already resulting in a more friendly attitude toward investment of American dollars and technical knowledge in the Asian country.

Something tangible involving construction work already is on the books. This includes the first two major programs of U. S. oil companies (Stanvac and Caltex) in Indian oil refineries that will cost about $60 million; and a $50-million aid agreement signed between the U. S. and India.

Significant, too, are statements from Indian businessmen that they'd like to see more U. S. capital coming in; and the 25-year guarantees against expropriation given the two oil companies.

• **Not all rosy**—There are some clouds on the horizon, of course—the biggest of them being tinged with the red of Soviet Russia.

Noting the trend toward better acceptance of U. S. work and friendship, the Soviets have launched an immediate drive for trade with India. USSR have even gone so far as to offer immediate delivery on any or all capital goods, and—more significantly—has offered to take payment in any kind of money.

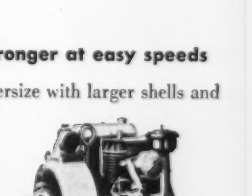
(*Continued on next page*)

a JAEGER never races to prime

*Dewatering 1500′ of 8′ x 14′ deep sewer trench at a river crossing, this 4″ Jaeger pump handled 40,000 gph at an average speed of only 1200 rpm (10% to 15% lower speed than other pumps), and reprimed quickly, as needed, at 1400 rpm (compared with 1800 to 2000 rpm required to prime ordinary pumps).

Pump longer because they pull stronger at easy speeds

Jaeger "Sure Prime" Pumps are built oversize with larger shells and impellers, and generously powered. They hold more priming water and are subject to less abrasive wear. Exclusive double priming action is fast, dependable, without harmful racing of engine. No vapor lock even when pulling high vacuum on long intake lines—sustained efficiency on non-stop pumping, and thousands of extra hours of service from both pumps and engines.



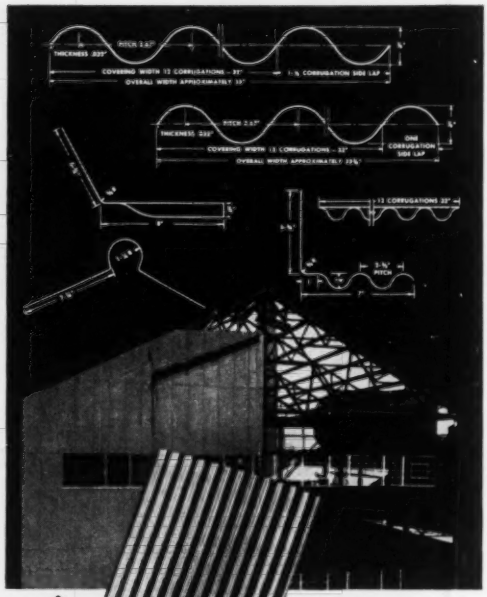
Other sizes 1½″ to 10″

See your Jaeger distributor or send for Catalog P-10

THE JAEGER MACHINE COMPANY

200 Dublin Ave., Columbus 16, Ohio

COMPRESSORS • MIXERS • HOISTS • TOWERS • PAVING MACHINERY



PUT UP
MORE ROOFING and SIDING
per man hour

Cost and time are slashed when you build with Alcoa Industrial Building Sheet. Light in weight (only 56 pounds per square) it goes on fast. Low in first cost, it piles up savings because it's so easy to apply... needs no protective painting.

It can be applied with a variety of fasteners including weldable studs. Available, with a full line of accessories, in the following sizes:

Lengths: 5 to 12 feet.
Widths: Roofing, 35 in. Siding, 33¾ in. 32 in. coverage.
Thickness: .032 equal to 21 U. S. Gauge.

Write for complete engineering and application details.

ALUMINUM COMPANY OF AMERICA
806C Gulf Bldg. • Pittsburgh 19, Pa.

ALCOA
INDUSTRIAL
BUILDING SHEET

International . . .

American observers in India, incidentally, report that some of the machinery from Russia is crude and badly finished—but they say that in general the machines are sturdy and serviceable.

• **Favorable and unfavorable features**—As seen from India, it appears that American private enterprise has a large part to play. Thirty-three U. S. technical experts are now at work in the country, more are coming, both from the government and such organizations as the Ford and Rockefeller foundations.

Also on the good side are such projects as American Cyanamid's dyestuff and pharmaceutical plant at Bulsar in Bombay State (Cyanamid holds 10% of the capital); and a new government fertilizer plant at Sindri in Bihar State, built by Chemical Construction Co. without any capital participation.

On the bad side are the fact that India's great hydro electric projects are moving very slowly; roadbuilding is negligible; private building small and poorly planned economically.

Toronto subway contracts have been let

All of the major contracts for the Toronto, Ont., rapid transit subway have now been let, according to W. H. Paterson, chief engineer of the Toronto Transportation Commission. The $45-million job under Yonge Street is to be ready for use early in 1954. While work on the stations is going on in the downtown sections of the 4¼-mile subway, excavating for the final section at the northern terminus has started.

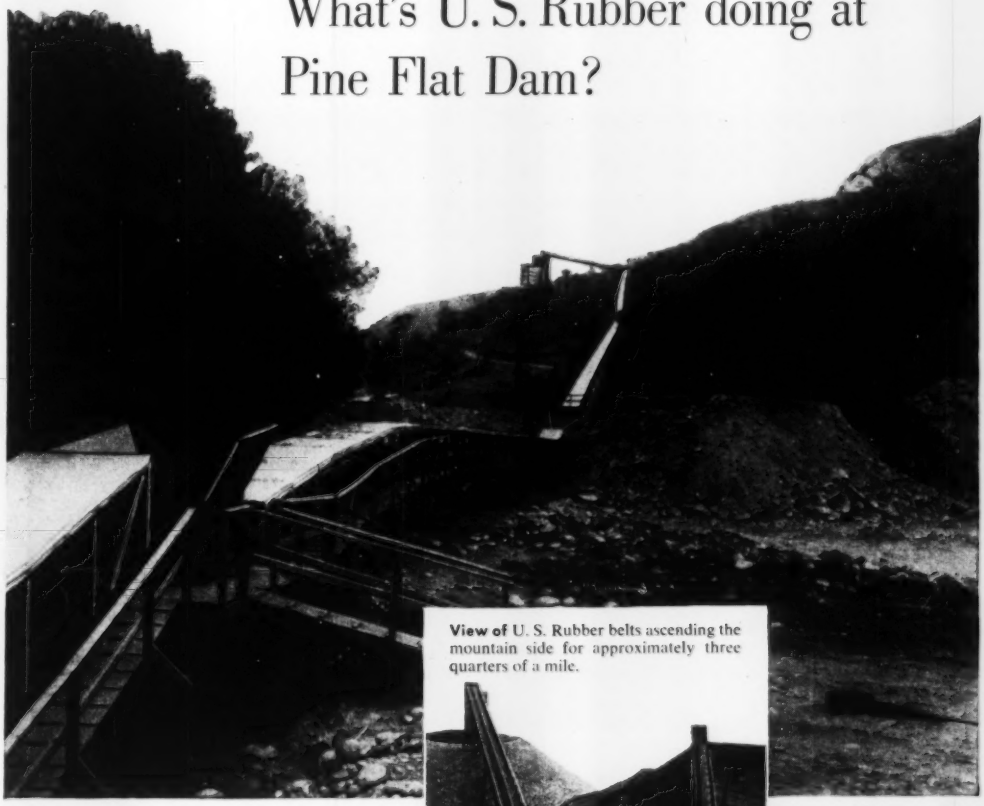
Biggest underpinning jobs were under the old Bank of Montreal building at Front and Yonge Sts., and near the northern terminus where the subway goes under an apartment block.

This first Canadian subway is being built by American and Canadian contractors, and most of the equipment and materials come from Canada or the United States. However, 104 cars, 57 ft long, are being built at Gloucester, England.

Future plans call for an east-west subway under Queen Street, the downtown station of which has already been built under the Yonge Street system; a subway from the southern terminus of the present subway north under University Avenue to Bloor Street, a subway east-west along Bloor Street, and extension of the present Yonge Street subway to the northern city limits.

(*Continued on page 64*)

What's U. S. Rubber doing at Pine Flat Dam?



View of U. S. Rubber belts ascending the mountain side for approximately three quarters of a mile.

Stockpiling coarse and fine material taken from the gravel pit.

At this great California installation, the finished aggregates and sand are carried by "U.S." conveyor belts from storage all the way to the batching plant high up on the site. The belting is 36" wide, climbs six flights for a total distance of 3700 feet. This 100% "U.S." belt installation is another example of 3-Way Engineering—"U.S." engineers worked with the conveyor equipment manufacturer and the contractor to produce this economical and efficient haulage system.

United States Rubber Company engineers have designed and built conveyor belts for a variety of installations, large and small. Let them advise you on any materials handling problems. Write to address below.

Here conveyors are stockpiling the finished washed-and-screened gravel.

PRODUCT OF

U.S.RUBBER
SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

We got the "hang" of it
from the Hartford engineer

(Based on an actual occurrence)

Putting in roads is our business, *not* taking out bridges. Still, on one recent, big repaving job, we had to take out several. Going at it with pick-axes, one plank at a time, we were making slow work of it. Dangerous work, too, for picks demand elbow room—elbow room we didn't have!

Seeing the spot we were in, the Hartford engineer suggested that we could do the job faster and more safely with the aid of a crane which was standing idle nearby. "You can cut your tie-bars, put slings around whole sections of planking, and hoist away," he pointed out. Having got the "hang" of it from the Hartford, we got that bridge out of there fast. We saved time and money, and no one got hurt.

Hartford insures and bonds all types of construction work. And Hartford engineers have accumulated a vast knowledge of the latest and best construction ideas and short cuts. From their broad background of experience in contracting operations, Hartford engineers can often help you uncover new operating efficiencies, prevent accidents, reduce insurance costs.

With this assistance, you may be able to increase your profits measurably. Ask your Hartford Accident and Indemnity Agent or your insurance broker about this "plus-feature" of Hartford protection.

Year in and year out you'll do well with the

Hartford

Hartford Fire Insurance Company • Hartford Accident and Indemnity Company
Hartford Live Stock Insurance Company • *Hartford 15, Connecticut*

International . . .

Mutual Security Agency has a wide scope

The New Mutual Security Agency has been created by Congress as a global agency with equal responsibilities in Asia and Western Europe.

In Europe, according to Director W. Averell Harriman, the MSA will work towards the creation of an economy capable of achieving the present rearmament goals of the North Atlantic Treaty Organization countries, and, at the same time, lay the basis for improved standards of living after the military buildup.

In the Far East, MSA will work to help the free people to realize their aspirations, extending technical and economic aid to Burma, the Associated States of Indochina, Indonesia, Thailand, the Philippines, and Formosa.

In Europe, it will provide such aid to Austria, Belgium, Denmark, Luxembourg, Norway, The Netherlands, Portugal, Trieste, Turkey, Yugoslavia and the United Kingdom (England, Wales, Scotland and Northern Ireland).

Much of the financial aid extended will be for construction in these countries, and a good deal of it will be done by American companies, or under the direction of technicians from this country.

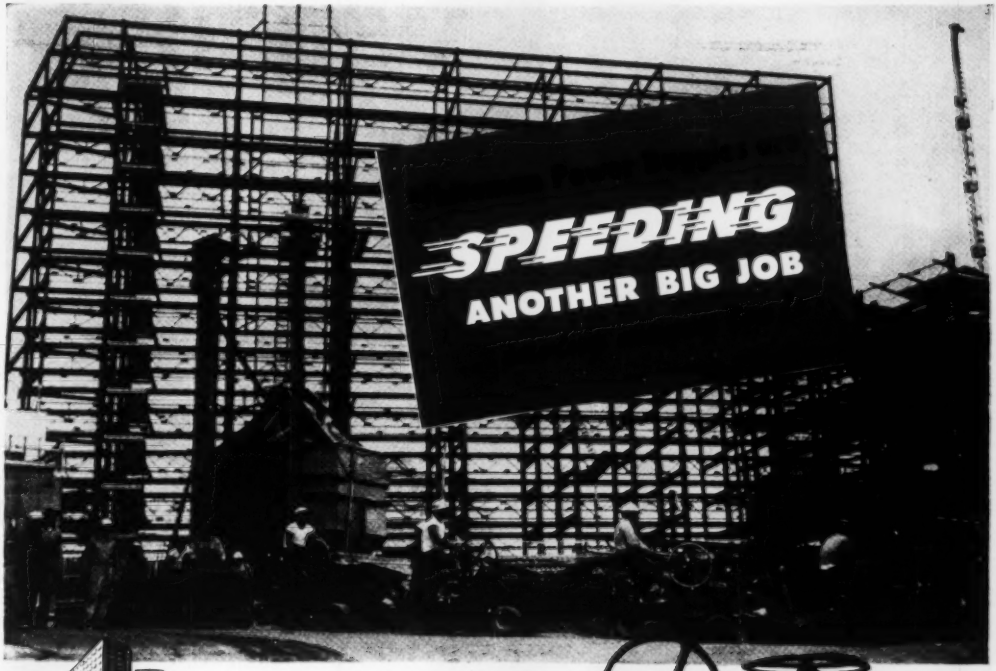
Britain starts building "People's Houses"

Recently Harold Macmillan, Britain's Minister of Housing and Local Government, opened at Disford, Leicestershire, the first two "people's houses" to be constructed in England.

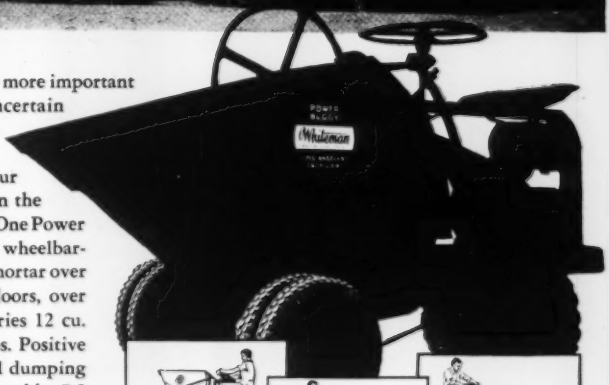
These houses save vital materials and cost less while preserving room sizes at minimum standards established. They cost $2,716 each and will be rented at $1.75 a week exclusive of utilities. The houses have two floors only, the ground floor including a living room, a dining annex, and a small kitchen. The top floor contains three bedrooms, a bathroom and a separate lavatory.

The Ministry of Housing and Local Government has sent out to building authorities throughout the country a booklet containing specimen designs of the "people's houses" and describing easier and quicker ways of building them. Some of the ideas came from the United States and Canada. It is claimed that the designs will save from $420 to $1120 without sacrificing standards. It is said that in the mix of concrete the substitu-

(Continued on page 68)



Speed and economy are more important than ever in these uncertain times. That's why Robt. E. McKee General Contractor, Inc., is using 8 Whiteman Power Buggies to pour 51,000 yards of concrete and rocklite on the big Statler Hotel project in Los Angeles. One Power Buggy does the work of six men with wheelbarrows . . . speeds concrete, sand, brick or mortar over soft earth, up 25% grades, to upper floors, over light scaffolds, through doorways. Carries 12 cu. ft. or 2,000 lbs., yet weighs only 692 lbs. Positive "in-gear" control permits partial or full dumping and return. Travels up to 16 mph. Powered by 7.5 hp, 4-cycle, air cooled engine, has automatic clutch and speed changer. Dependable performance and durability proved over many years. Priced to pay for itself in a short time. Send coupon now for details and name of your nearby distributor.



Climbs 25% grades with ease.

Positive "in-gear" mechanism of dump and return.

Also available with dumping stake-type body.

Whiteman

SEND NOW!

WHITEMAN MANUFACTURING CO.
3249 Casitas Ave. Dept. E. Los Angeles 39, Calif.

Please send me name of distributor, literature and prices on Whiteman Equipment.

Name_____

Company_____

Address_____

City_____ Zone___ State_____

Why they

call this pipe

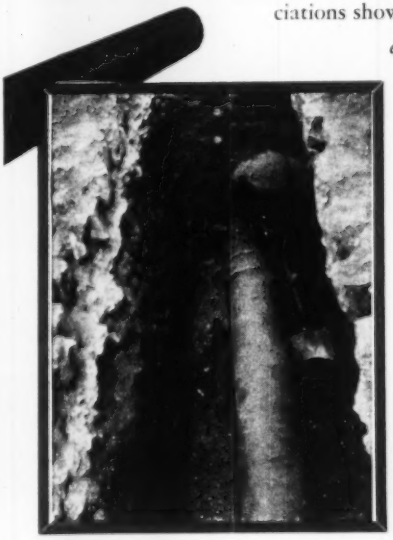
*America's No. 1 Tax Saver

Top Tax Saver is the cast iron pipe in the water distribution systems of cities and towns throughout America. Beyond question, long-lived cast iron pipe has saved, and today is saving taxpayers millions of dollars. Why?

An estimated 60% of the $6-billion cumulative investment in America's water supply systems is represented by pipe and labor for the construction of supply and distribution mains, paid for usually by the issuance of bonds.

Leading waterworks engineers estimate the useful life of cast iron pipe at *4 to 5 times* the average term of a water revenue bond issue. They base their estimates on the fact that over 35 American cities have cast iron mains in service that were installed more than 100 years ago. Moreover, a survey sponsored by three waterworks associations shows that 96% of all six-inch and larger cast iron pipe *ever laid* in 25 typical cities, are still in service. Thus, the *strength factors* of long life, native to cast iron pipe, are self-evident.

When you consider that over 95% of America's water distribution systems are constructed with long-lived cast iron pipe, can you doubt that it is *America's No. 1 Tax Saver?*



America's oldest functioning water main is in its 135th year of service in Philadelphia's distribution system. Cast iron, of course. Over 30 other cities have century-old cast iron mains in service.

CAST IRON PIPE

America's No. 1 Tax Saver

*© 1952, Cast Iron Pipe Research Association

CAST IRON PIPE RESEARCH ASSOCIATION, THOS. F. WOLFE, MANAGING DIRECTOR, 122 SO. MICHIGAN AVE., CHICAGO 3.

Consult **BLAW-KNOX *FIRST***

before your plans are drawn on engineered construction jobs

• EVEN BEFORE the plans are drawn . . . *before* the blueprints are made on your next engineered construction job, call in Blaw-Knox engineers for the expert consultation service that assures lower concrete placing costs.

Blaw-Knox engineers are backed by over 40 years experience in solving tough or unusual concreting problems. They are trained to get to the core of your problem and find the simplest, least costly method of solving it. They can suggest operating procedures to speed the job, or cut down the necessary number of operations. They will recommend the most efficient forms for the job and help you estimate your bids.

Whatever your concreting problems—dams, tunnels, bridges, even small sewers—take advantage of the Blaw-Knox engineering service *before* you start to plan. Write, wire or phone for information.

Preliminary planning
plus BLAW-KNOX STEEL FORMS
saved one costly concreting operation

• This big tunnel job is a typical example of how early consultation pays off. Blaw-Knox engineers showed the contractor how to combine the collapsible Steel Forms to permit concreting of side walls and roof arch in one operation. One step in construction was saved, and the necessity of using an expensive copper water stop was eliminated.

STEEL FORMS

WRITE FOR BULLETIN 2035

Get complete details about Blaw-Knox Steel Forms and the consultation service that is available to any contractor without obligation.

CONSULTATION SERVICE BY

BLAW-KNOX

BLAW-KNOX DIVISION of Blaw-Knox Company
Farmers Bank Building, Pittsburgh 22, Pa.
NEW YORK • CHICAGO • PHILADELPHIA • BIRMINGHAM • WASHINGTON • SAN FRANCISCO

International . . .

tion of clinker blocks for bricks and wood for metal fittings there is great scope for saving.

It is hoped that the striking economies achieved in the construction of these first people's houses will pave the way to the realization of the Conservative government's target of 300,000 new houses a year.

International briefs

• **Bauxite-alumina production**—To help meet defense needs for aluminum in the United States and other free nations, a 150 percent expansion of aluminum, Ltd., bauxite-alumina production facilities in Jamaica, involving an additional Canadian investment of at least $20 million is now under construction. Manufacture of alumina in Jamaica, rather than shipping out the bauxite ore, reduces shipping costs by more than half. Electric power for reducing alumina to aluminum is economically available in Canada.

• **Reclamation engineers go to India**—By request of the Indian government, several Bureau of Reclamation engineers will go to India to advise the Central Water and Power Board on dam and power plant design and construction, in connection with Point 4 cooperation in economic development. The men include Clarence Rawhouser, Paul von der Tippe, and Clifford L. Mutch.

• **Cement material by pipeline**—A 50-mile pipeline will carry calciferous material in slurry form through the mountains of Rio de Janiero state to the port of Macahe where a 2,000-sack-a-day cement plant is to be built with U. S. assistance and financial help from the Export-Import Bank. Details have been worked out at Corpus Christi, Tex., by engineers for the Halliburton interests which have guaranteed the bank loan of $5,000,000. It is said that some type of colloidal admixture will be used to prevent settling or abrasion of the pipeline.

• **Construction industries fair**—The first Australian construction industries fair and convention will be held in Sydney, April 7-15. At the fair will be the largest exhibit of earth-moving and construction equipment ever assembled in Australia.

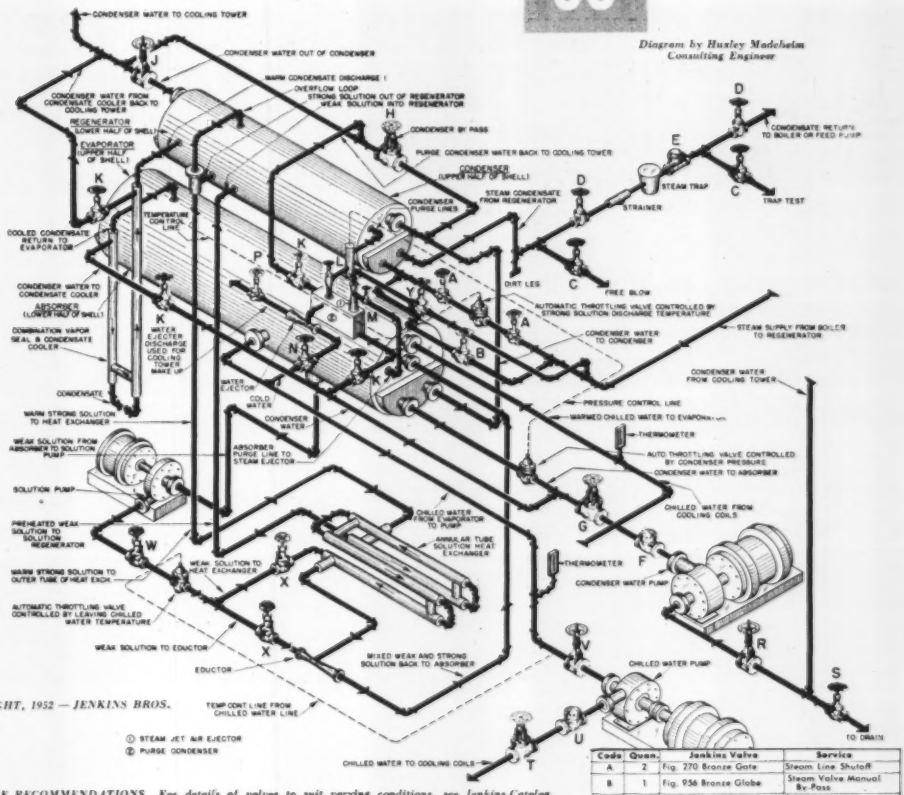
• **Submarine pipeline**—Engineering difficulties were solved during the recent laying of a large submarine oil pipeline at Port Moresby, Papua. The

(*Continued on page 71*)

JENKINS PRACTICAL PIPING LAYOUTS

59

Diagram by Huxley Madeheim
Consulting Engineer


CONDENSER WATER TO COOLING TOWER
CONDENSER WATER OUT OF CONDENSER
WARM CONDENSATE DISCHARGE
OVERFLOW LOOP
STRONG SOLUTION OUT OF REGENERATOR
WEAK SOLUTION INTO REGENERATOR
CONDENSER WATER FROM CONDENSATE COOLER BACK TO COOLING TOWER
REGENERATOR (LOWER HALF OF SHELL)
EVAPORATOR (UPPER HALF OF SHELL)
CONDENSER BY PASS
PURGE CONDENSER WATER BACK TO COOLING TOWER
CONDENSER (UPPER HALF OF SHELL)
CONDENSER PURGE LINES
STEAM CONDENSATE FROM REGENERATOR
CONDENSATE RETURN TO BOILER OR FEED PUMP
STEAM TRAP
TRAP TEST
STRAINER
DIRT LEG
FREE BLOW
COOLED CONDENSATE RETURN TO EVAPORATOR
TEMPERATURE CONTROL LINE
CONDENSER WATER TO CONDENSATE COOLER
ABSORBER (LOWER HALF OF SHELL)
COMBINATION VAPOR SEAL & CONDENSATE COOLER
WATER EJECTOR DISCHARGE USED FOR COOLING TOWER MAKE UP
AUTOMATIC THROTTLING VALVE CONTROLLED BY STRONG SOLUTION DISCHARGE TEMPERATURE
CONDENSER WATER TO CONDENSER
STEAM SUPPLY FROM BOILER TO REGENERATOR
CONDENSATE
WATER EJECTOR
COLD WATER
CONDENSER WATER FROM COOLING TOWER
PRESSURE CONTROL LINE
WARM STRONG SOLUTION TO HEAT EXCHANGER
CONDENSER WATER
WARMED CHILLED WATER TO EVAPORATOR
THERMOMETER
WEAK SOLUTION FROM ABSORBER TO SOLUTION PUMP
ABSORBER PURGE LINE TO STEAM EJECTOR
AUTO THROTTLING VALVE CONTROLLED BY CONDENSER PRESSURE
CONDENSER WATER TO ABSORBER
SOLUTION PUMP
CHILLED WATER FROM CHILLED WATER COOLING COILS
CHILLED WATER FROM EVAPORATOR TO PUMP
PREHEATED WEAK SOLUTION TO SOLUTION REGENERATOR
ANNULAR TUBE SOLUTION HEAT EXCHANGER
THERMOMETER
WARM STRONG SOLUTION TO OUTER TUBE OF HEAT EXCH.
WEAK SOLUTION TO HEAT EXCHANGER
CONDENSER WATER PUMP
AUTOMATIC THROTTLING VALVE CONTROLLED BY LEAVING CHILLED WATER TEMPERATURE
WEAK SOLUTION TO EDUCTOR
EDUCTOR
MIXED WEAK AND STRONG SOLUTION BACK TO ABSORBER
CHILLED WATER PUMP
TEMP CONT LINE FROM CHILLED WATER LINE
TO DRAIN
CHILLED WATER TO COOLING COILS
① STEAM JET AIR EJECTOR
② PURGE CONDENSER

COPYRIGHT, 1952 — JENKINS BROS.

Code	Quan.	Jenkins Valve	Service
A	2	Fig. 270 Bronze Gate	Steam Line Shutoff
B	1	Fig. 936 Bronze Globe	Steam Valve Manual By-Pass
C	2	Fig. 106-A Bronze Globe	Trap Test, Free Blow
D	2	Fig. 270 Bronze Gate	Steam Condensate Shut-off
E	1	Fig. 762 Br. Swing Check	Prevent Condensate Backflow
F	1	Fig. 624 I.B.B.M. Sw. Check	Condenser Pump Discharge
G	1	Fig. 142 I.B.B.M. Globe	Condenser Pump Discharge
H	1	Fig. 142 I.B.B.M. Globe	Condenser By Pass
J	1	Fig. 651, I.B.B.M. Gate	Condenser Discharge Shutoff
K	4	Fig. 106-A Bronze Globe	Condenser Water
L	1	Fig. 744-G, Bronze Needle	Condenser Purge Line
M	1	Fig. 743-G, Bronze Needle	Absorber Purge Line
N	1	Fig. 106-A Bronze Globe	City Water to Water Ejector
P	1	Fig. 47-U, Bronze Gate	Water Ejector Discharge
R	1	Fig. 651, I.B.B.M. Gate	Condenser Pump Suction
S	1	Fig. 106-A Bronze Globe	Condenser Water Drain Valve
T	1	Fig. 142 I.B.B.M. Globe	Chilled Water Pump Discharge
U	1	Fig. 624, I.B.B.M. Sw. Check	Chilled Water Pump Discharge
V	1	Fig. 651, I.B.B.M. Gate	Chilled Water Pump Suction
W	1	Fig. 75-A All Iron Globe	Solution Flow Control
X	2	Fig. 75-A All Iron Globe	Solution Flow Control
Y	1	Fig. 936, Bronze Globe	Steam Ejector Shutoff

VALVE RECOMMENDATIONS For details of valves to suit varying conditions, see Jenkins Catalog.

How to plan ABSORPTION REFRIGERATION CONNECTIONS FOR AIR CONDITIONING

Absorption refrigeration systems for air conditioning generally use water as the refrigerant and a water absorbent salt solution which dissolves the vapor from the chilled water in the evaporator, with a very low pressure and temperature resulting. The chilled water is then pumped through coils of the air handling units.

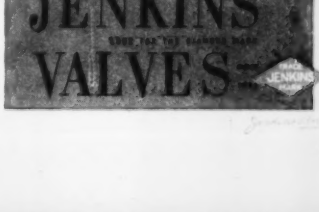
The diluted salt solution is withdrawn from the absorber. A portion is pumped to an eductor, the remainder to the solution regenerated through an annular tube heat exchanger. In the regenerator, the weak solution is heated by a steam coil to boil off the water vapor dissolved in the absorber. This strengthened solution then returns to the absorber through the heat exchanger and eductor.

The steam boiled off the weak solution is condensed and returned to the evaporator pan through the vapor seal loop. Tandem steam and water jets maintain low pressure in both shells. Cold water from the water jet is used for makeup in the cooling tower.

Consultation with piping engineers is recommended when planning any major piping installations.

To save time, to simplify planning, to get all the advantages of Jenkins specialized valve engineering, select all the valves you need from Jenkins complete line. It's your best assurance of *lowest cost in the long run.* Jenkins Bros., 100 Park Ave., New York 17; Jenkins Bros., Ltd., Montreal.

COMPLETE DESCRIPTION AND ENLARGED DIAGRAM OF THIS LAYOUT FREE ON REQUEST. Includes additional detailed information. Ask for Piping Layout No. 59.



Cummins Diesels
do so many jobs - so much better

Shovels, cranes, industrial locomotives

Drilling rigs, centrifugal pumps, generator sets

Buses and on-highway trucks

...because they're custom-built to fit the job

Earthmovers, logging yarders and loaders

Off-highway trucks, crawler tractors

Work boats, pleasure craft

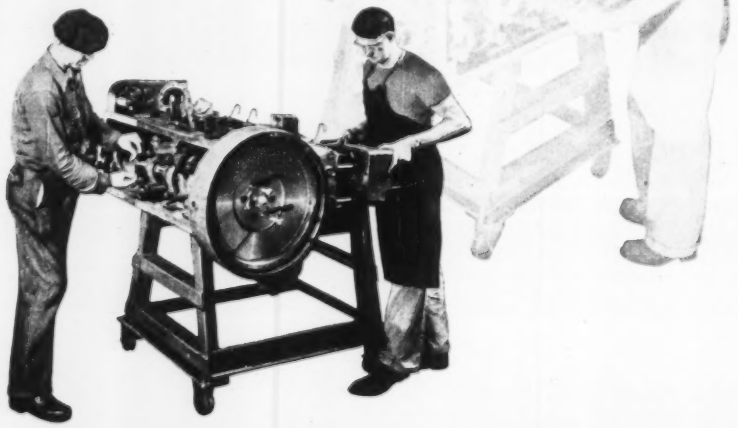
Lightweight, high-speed Diesels (50-550 hp) for these and many other uses

---

...because they're

BUILT NOT ONCE BUT TWICE

Rugged, lightweight, high-speed Cummins Diesels are at work everywhere. Each engine is built *twice*. It's assembled, run-in tested, disassembled and inspected, then reassembled and tested again. This extra care in building, plus Cummins exclusive fuel system and an efficient and expanding service and parts organization, means minimum "down time", more power and profits for the user. See your Cummins dealer.



CUMMINS Dependable DIESEL

TRADEMARK REG. U. S. PAT. OFF.

Diesel power by CUMMINS

CUMMINS ENGINE COMPANY, INC., COLUMBUS, INDIANA

Export: Cummins Diesel Export Corporation • Columbus, Indiana, U.S.A. • Cable: Cumdiex

International . . .

8-in. dia, 4,300 ft-long pipeline was necessary as there are neither deep water berths nor jetties available for 15,000-ton tankers. In some cases it was imperative to use large concrete blocks to support the pipeline clear of underlying sharp coral ridges. The pipeline was fabricated on shore to the exact contour of the sea bed, coated against corrosion, and floated out in one length and lowered into position. The line is the property of the Vacuum Oil Co. Ltd.

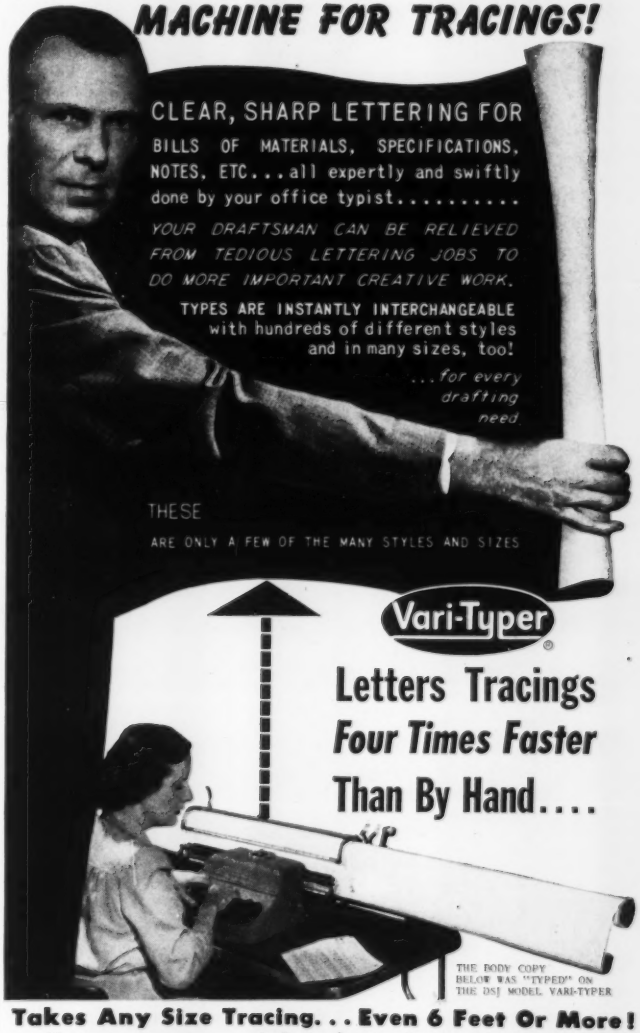
• **Institute of Technology**—B. Sumner Gruzen, head of Kelly & Gruzen, New York, is in Israel conferring with government leaders and authorities of Haifa Technion on architectural plans for the new institute to be built on a 250-acre site in Haifa. Construction is expected to start soon. The estimated cost is $20,000,000, about half of which will be raised in the United States by the American Technion Society.

• **To aid in Italian flood clean-up**—John S. Davis of Kansas City, Mo., who directed clean-up work in last summer's Kansas-Missouri flood, has gone to Italy in response to a request from the Italian government, to help victims of the Po River valley flood. During World War II Mr. Davis, as a civil engineer for the Army Engineer Corps, supervised military construction in that region.

• **Brazilian road program**—A $42 million highway construction program is about to get under way in the state of Rio de Janeiro, Brazil. It calls for the construction of 379 miles of new waterbound macadam roads and the asphalt paving of 304 miles of existing roads. The chief project is a 227-mi highway from Niteroi, Rio state capital, to Campas in the heart of the area's sugar country. The work will be done by private contractors. Unit prices are at fixed levels and bids will be made on the basis of the financing which the contractor can offer the state government, factors being the deferred payments and rate of interest.

• **Mexican public works**—An $80 million budget—an all-time high one—will provide the Mexican Ministry of Communications and Public Works with $63 million to spend in completing highways already under construction, chiefly those between Guadalajara, capital of Jalisco state, and Nogales, Sonora, the western section of the Mexican branches of the Pan American Highway, and Vera Cruz and Coatzcoalcos, Vera Cruz State.

At last!...A PERFECT LETTERING MACHINE FOR TRACINGS!


CLEAR, SHARP LETTERING FOR
BILLS OF MATERIALS, SPECIFICATIONS, NOTES, ETC...all expertly and swiftly done by your office typist.....
YOUR DRAFTSMAN CAN BE RELIEVED FROM TEDIOUS LETTERING JOBS TO DO MORE IMPORTANT CREATIVE WORK.
TYPES ARE INSTANTLY INTERCHANGEABLE with hundreds of different styles and in many sizes, too!
...for every drafting need
THESE
ARE ONLY A FEW OF THE MANY STYLES AND SIZES
Vari-Typer
Letters Tracings
Four Times Faster
Than By Hand....
THE BODY COPY BELOW WAS "TYPED" ON THE DSJ MODEL VARI-TYPER

Takes Any Size Tracing. . . Even 6 Feet Or More!

Now you can save your draftsman's time for more important creative work. A *Vari-Typer lettering machine* will give your tracings sharper, clearer, more legible lettering in less than one-fourth the time it takes your best draftsman to do the job. America's leading industrial organizations are already using this new, efficient system in their drafting rooms.

OPERATES LIKE A TYPEWRITER

The standard keyboard permits quick mastery of the Vari-Typer lettering machine by your office typist. Electrically controlled impressions insure uniformity of letters and sharpness of details.

Ralph C. Coxhead Corp.
720 Frelinghuysen Avenue
Newark 5, N. J.
Please send me Vari-Typer Booklet #A49.
Name .....
Company .....
Address .....
City ..... Zone ... State .....

7 Bantams® 200-mi. pipeline

Through swamps . . . Even though his Bantam frequently had to work in mud and water up to the cab, Golden Perkins, Orono, Me., was able to maintain excellent production on his portion of the pipeline.

Up and down steep bluffs . . . Grades here were so severe that Herbert Seamans, Skowhegan, Me., had to be pulled uphill by two crawler tractors, while excavating crossing for the Kenduskeag River.

Along highways . . . L. S. Reed, South China, Me., found Bantam's maneuverability and high speed mobility a big asset in making fast job-to-job moves over back roads, from one section of the line to another.

Across soggy meadows . . . Bantam's low weight and sure-footed traction enabled Desmond Verrill, Carmel, Me., to continue trenching through soggy farm land that would have stalled bigger, heavier machines.

Through clay and shale . . . Even in Maine's toughest rock and clay excavation, Bantam's rugged construction and simple mechanical controls helped keep the job moving on schedule for C. C. Church, Benton, Me.

Through forests . . . This Bantam operated by Leland Ross, Augusta, Me., averaged 1650' of 30" x 30" trench per 9 hour day . . . dug up to 400' of trench hourly where favorable soil conditions were encountered.

SCHIELD BANTAM

. . . THE NEW LEADER IN truck-mounted shovel-cranes

speed construction of for Limestone Air Base

BANTAMS handle all pipe unloading at 11 scattered points ... average 123′ of trench per hr. on toughest assignments

To speed excavation of the 6" pipeline supplying the new B-36 Bomber base at Limestone, Me., *W. H. Hinman, Inc.*, of North Anson, employed 6 privately-owned Schield Bantam Back Hoes, equipped with 30" buckets. A 7th truck-mounted Bantam, owned by Hugh Connor, Inc., Bangor, Me., unloaded the entire 200 miles of 6" pipe for the prime contractor — *Associated Pipeline Contractors, Houston, Texas.* (See details in photo below).

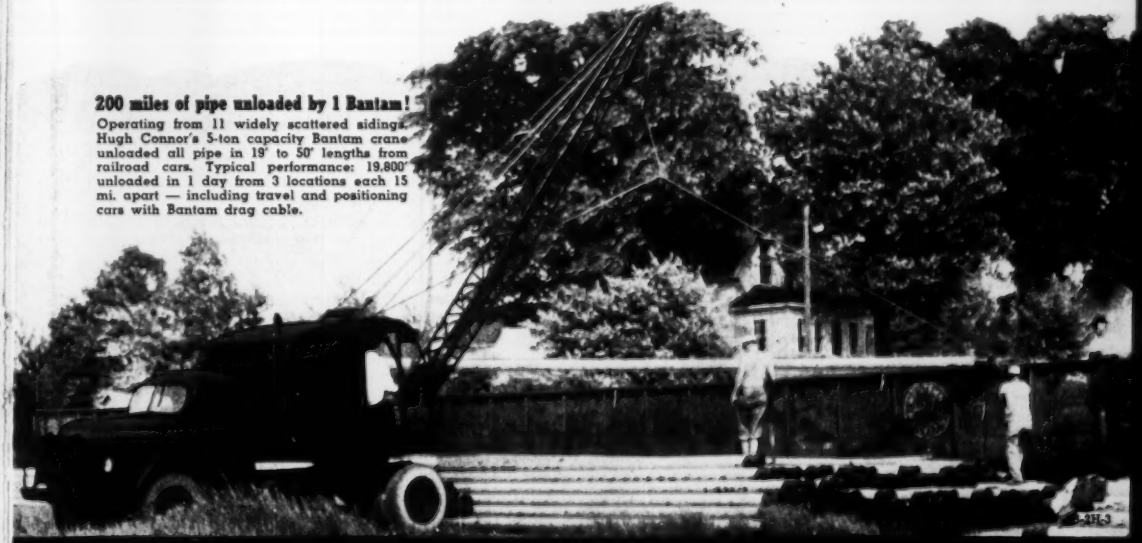
Brought in originally to handle the lighter digging ahead of 16 ¾-yd. hoes, the high-speed ⅜-yd. Bantams proved so effective that they were quickly re-assigned to tougher digging in shale and rock, river bottoms and swamps, where their low weight and maneuverability paid big dividends. Working on steep grades—and frequently in water up to their cabs — the rugged Bantams *completed approximately 40 miles of trench 30" wide by 30" deep in 2 months.*

During typical 19-day period, 5 Bantams, working a total of 823 hrs., dug 19¼ miles of trench, for an average of *123.5′ hourly per machine.*

Investigate Bantam economy TODAY!

Learn how *thousands* of other contractors, highway departments and industrial users are getting *"big machine performance at a fraction of the usual cost"* with truck-mounted Bantams. Shovel or dragline digs up to 90 cu. yds. per hr. . . . crane lifts 10,000 lbs. . . . handles 8 fast-change attachments, including ½ cu. yd. concrete bucket. Works with 50′ boom.

Write today for free Bantam literature, name of nearest distributor, or names of local Bantam owners equipped to do your excavating and crane work at a saving.



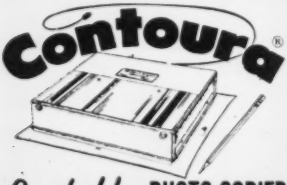
200 miles of pipe unloaded by 1 Bantam!
Operating from 11 widely scattered sidings, Hugh Connor's 5-ton capacity Bantam crane unloaded all pipe in 19′ to 50′ lengths from railroad cars. Typical performance: 19,800′ unloaded in 1 day from 3 locations each 15 mi. apart — including travel and positioning cars with Bantam drag cable.

Clip... Mail Today!

SCHIELD BANTAM CO., 201 Park St., Waverly, Iowa, U. S. A.
Send details on truck-mounted BANTAM ☐ Cranes ☐ Excavators ☐ Name of nearest distributor
Name ..... Position .....
Company ..... Type of Business .....
Address ..... City ..... State .....

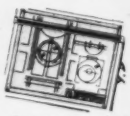
HERE'S HOW TO SAVE TIME, MONEY & ENERGY!

Contoura®



Portable PHOTO-COPIER

End drudgery of long-hand - copying and proofreading notes. Contoura - copied manuscripts, bound abstracts and articles are letter - perfect, need no checking.



Contoura-copy (1) parts of large drawing without removing from drawing board; (2) small diagrams, signatures and sketches, or (3) full-page graphs, charts, prints, specifications.

Make company record copies of research notes right from test-finding lab notebook, longhand memos, sketches, projected ratings and verified readings.

Contoura - copy excerpts, or entire pages up to 8½" x 14", from noncirculating books without logging heavy volumes to photo copy company.

TRULY PORTABLE! Only four pounds, it fits easily in briefcase or desk drawer. Use it anywhere.

COPIES ANYTHING written, printed or drawn up to 8½" x 14" whether ink, pencil or crayon . . . even if on both sides! Lastingly clear copies only 7¢! *Contoura's* unique cushion reproduces tightly bound pages despite curved binding!

NEEDS NO DARKROOM; make exposures under normal artificial light; develop prints, at leisure, in standard photo chemicals.

ELIMINATES DRUDGERY and inherent errors of longhand-copying, typing and proofreading! Professional business and industrial users everywhere say *Contoura* affords time and money savings they never thought possible.

Models as low as $39.00

Write for Free Folder To-Day

Pat. Pending

F. G. Ludwig Associates

85 Pease Rd. Woodbridge, Conn.

EXCAVATION STARTED for first building in Chicago's blighted area development program. Mayor Kennelly poses at controls of power shovel following symbolical spading ceremony. Watching from left to right are: Gen. Otto L. Nelson, vice-president of housing, New York Life Insurance Co., and Michael J. Long, vice-chairman of Chicago Land Clearance Commission.

Chicago starts Title I program

Private enterprise and government are teaming up in a working partnership to wipe out the nation's slums. Latest example of the action (taken under Title I of the National Housing Act of 1949): Ground breaking in Chicago for the much-publicized Lake Meadows project.

Private enterprise is represented by New York Life Insurance Co., which will construct and operate Lake Meadow's 18 buildings.

Local government action came through the Chicago Land Clearance Commission, which bought and cleared the former slum infested acreage, and then sold the cleared land to the insurance company.

Federal government acting through the Division of Slum Clearance and Urban Redevelopment of the Housing and Home Finance Agency is footing the bill for two-thirds of the difference between the cost of acquiring the site and the price at which the commission sold the land to the insurance company.

The federal money—called a capital grant—amounts to $9,176,075, and it is estimated that the cost of acquiring the site will be $14,196,000.

• **Project No. 1**—The commission now owns or has under option 90% of the parcels in the 101-acre site. More than half of the slum buildings on the site have been demolished. Chicago officials indicated that this is No. 1 in the city's redevelopment program.

Lake Meadows will contain two 23-story apartment buildings, 11 two-story garden-type structures and five 12-story apartment buildings. A shopping center, park, school, garage and off-street parking for 2,000 families are also planned.

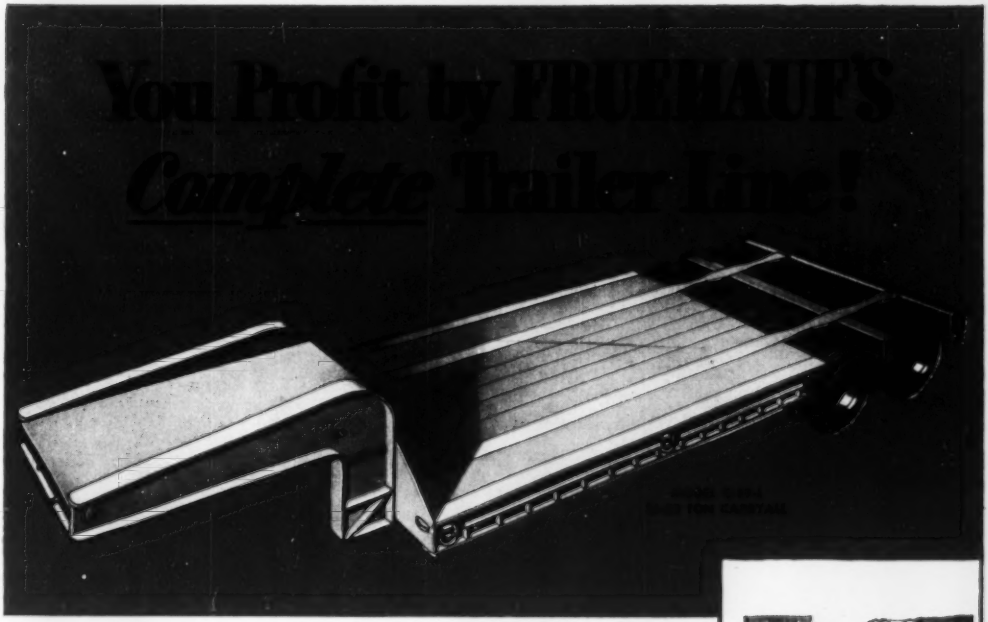
The city expects to recover much of the money it is spending—drawing funds from a $15-million bond issue and state funds of $10-million—through the increased real estate taxes that will be received from the new property.

Due to the complications and the many steps necessary in planning and executing a slum clearance program under Title I of the Housing Act of 1949, months and sometimes years are consumed in starting and finishing a program. Cities in the Chicago class have avoided much of this red-tape because their wealth and resource enabled them to skip many of the steps a poorer city had to take.

• **Title I**—Although passed almost three years ago, Title I of the Housing Act of 1949 is only now beginning to gather steam and show results.

Title I is the slum clearance and urban redevelopment program administered by the Division of Slum Clearance and Urban Redevelopment, of the Office of the Administrator of the

You Profit by FRUEHAUF'S *Complete* Trailer Line!



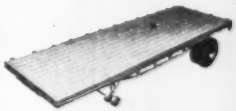
THIS 36-50 TON CARRYALL is one of a full line of Fruehauf Trailers built to handle big construction jobs of every kind — *quickly.*

Fruehauf Carryalls with standard capacities from 10 to 74 tons, and specials up to 100 tons, provide *direct, immediate transport* for heavy machinery and large installations. Fruehauf's complete line of construction units also includes Platform Trailers, Tilt Decks, Pole Trailers, Dump Trailers, Hopper Dumps, and Bulk Cement Tanks, facilitating quick, easy loading and routing of all types of materials.

For an industry which is constantly on the move, *only Fruehauf* provides the protection of *nationwide* Factory Branch Service, for *direct, immediate* maintenance and repairs. *Only Fruehauf* provides the important service economy feature of a *complete* line with many interchangeable parts. In addition, the long experience of Fruehauf engineers—and the *dependability* of the Fruehauf name—stand behind every Fruehauf Trailer sold.

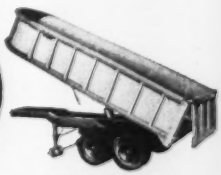
POLE TRAILERS

DOUBLE DROP CARRYALLS



PLATFORMS

BULK CEMENT TRAILERS



DUMP TRAILERS

IT'S EASY to Investigate Further! For illustrations and specifications on the *complete* Fruehauf line, ask for the free catalog.

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY
Detroit 32, Michigan

FRUEHAUF Trailers
"ENGINEERED TRANSPORTATION"

WORLD'S WIDEST CHOICE OF TRAILERS IS YOUR SUREST WAY TO SAVINGS!

UNIT TV*

Terrific Value...
IN EVERY CHANNEL OF OPERATION!

Select YOUR FAVORITE UNIT STAR

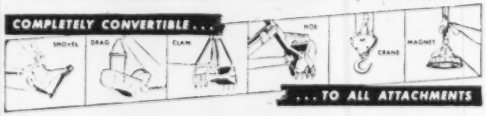
- 357 Mobile Type ½ Yard Excavator Crane up to 9 tons.
- 614 Crawler Type ½ Yard Excavator Crane up to 8 tons.
- 1020 Crawler Type ¾ Yard Excavator Crane up to 10 tons.
- 1520 Mobile Type ¾ Yard Excavator Crane up to 20 tons.
- 1014 Truck Crane ½ Yard Excavator Crane up to 12 tons.
- 1520T Truck Crane ¾ Yard Excavator Crane up to 20 tons.

All Models Convertible to ALL Attachments.

You'll like this versatile mobile UNIT. Designed to handle a wide variety of jobs, both on and off the highway. It lifts, loads, hauls and digs . . . has 1001 uses. Works efficiently in close quarters . . . goes anywhere. Rugged, compact, sufficiently narrow for convenient road travel. Smooth, effortless hydraulic steering. Handles as easily as an automobile. Powered by ONE engine . . . controlled and operated by ONE man. Full Vision Cab gives operator complete visibility in ALL directions. Gas or Diesel power. Low initial cost. Low upkeep. Write for copy of Bulletin L-301.

UNIT CRANE & SHOVEL CORP.
6315 W. BURNHAM STREET • MILWAUKEE 14, WISCONSIN

COMPLETELY CONVERTIBLE . . .



. . . TO ALL ATTACHMENTS

UNIT "T-V SET"!
Novel UNIT brochure portrays the complete line . . . illustrates 10 reasons why UNIT is a better machine. Send for your copy. It's Free.

SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHOES • MAGNETS

A 7005-½IC

LEFAX POCKET SIZE TECHNICAL DATA BOOKS $1. EACH

● Printed on loose leaf, six hole, 6¾" x 3¾" bond paper, each book contains about 140 pages of technical data, presenting condensed, accurate and essential data for the student, engineer, technical worker and business man.

Architecture	Radio	Trig-Log Tables
Home Heating	Television & FM	Analytic
Illumination	Electricity, AC	Chemistry
Electrician's	Electricity, DC	Highway
Data	AC Motors and	Mechanics of
Builder's Data	Generators	Engineering
Lumber Data	Trans. Relays &	Materials
Air Conditioning	Meters	Power Trans.
General Math.	Hydraulics	Mach'y.
Math. Tables	Surveying	Thermodynamic
Physics	Mech. Drawing	Tables &
Chemical Tables	Machine Design	Charts
Metals	Machinists Data	Phys. & Thermo-
Gen'l. Chemistry	Piping Data	dynamic Data
Reinf. Concrete	Surveying Tables	Phys. & Org.
Building Constr.	Metallurgy	Chemistry

● Write for FREE Catalogs (over 2000 listings). See for yourself how helpful LEFAX can be to you. Send $1. for each book, or $5. for any six books listed above, to:

LEFAX, Dept. ER 14, Philadelphia 7, Pa.

Hayward Buckets

Use this Class "E" Clam Shell Bucket for handling crushed stone, gravel, sand and other bulk materials.
THE HAYWARD CO., 48-50 Church St., N. Y.

Housing and Home Finance Agency.

Over 200 localities have already taken advantage of the program to start planning for the removal of blighted areas in their jurisdiction.

• **How the program operates**—The best way to show how the program operates is to follow the steps of a typical community in getting its share of the program.

A body of citizens, or a public group, or any official or quasi-official unit finds that a slum area, which is predominantly residential, exists and should be redeveloped. They impress this belief on the governing body of the municipality (or state or county or any other recognizable community).

• **First Action**—The local governing body requests reservation of Federal capital grant funds for a local program. HHFA then makes a reservation of funds out of the $500-million fund at his disposal.

• **Preliminary advance of funds**—The municipality then designates an agency to undertake Title I projects. This agency can be the local housing authority, the office of the local city engineer, or a newly-created group for this especial purpose. The Chicago agency was its land commission.

This agency then applies for a preliminary advance of funds. The preliminary advance is used for surveys to identify one or more project areas for redevelopment and to obtain information in support of an application for a final advance.

The administrator approves the contract for preliminary advance of funds. The advance is used to identify a project area.

• **Final advance of funds**—Local public agency submits an application for final advance of funds. Administrator approves contract for final advance of funds. Local agency uses money for detailed studies and plans and then submits material for review.

At this point a public hearing is usually held and approval of the plan is sought.

• **Application for temporary loan and grants**—Local public agency submits application for a temporary loan and capital grant. Application includes assurances of local grants-in-aid.

The plan must include the following elements:

1. General plan for development of the locality as a whole.
2. Redevelopment plan for the project area.
3. Plan for the relocation of families in the project area.
4. Plan for land acquisition and disposition.

. . . it's the new RING-TITE JOINT used with Transite Sewer Pipe

NO NEED TO LET ordinary time-consuming methods of making joints slow down your sewer line jobs—not when you install Transite* Sewer Pipe with its new Ring-Tite Coupling.

Just a simple assembly operation with a mechanical coupling puller and this new "packaged" joint is ready for business! No jointing compounds to bother with . . . no heating equipment . . . no special skill is required. And you can check each joint for proper assembly as soon as it is made—*before backfilling.*

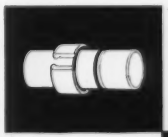
Moreover, this easily assembled Ring-Tite Coupling makes a tight joint that *stays* tight in service. This, plus the fact that Transite's long 13-foot lengths mean *fewer* joints in the line, cuts infiltration to a minimum. As a result, treatment costs are reduced, plant capacity conserved for future needs.

Another money-saving advantage of this asbestos-cement pipe is its high flow capacity (Manning's n=.010). This often permits flatter grades and shallower trenches — a particularly important economy where pipe is laid at or below the ground water line or where rock excavation is required.

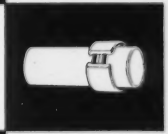
May we send you more complete data? Address Johns-Manville, Box 290, New York 16, N. Y. Ask for folder TR-103A.

*Transite is a registered Johns-Manville trade mark

HERE'S HOW THE RING-TITE JOINT WORKS:



Start of assembly. Two rubber rings and a Transite sleeve (cut away to show position of the rings) are placed on one of the two pipe ends to be joined.



Final position. Sleeve centered over both pipe ends, with the rubber rings tightly compressed between sleeve and pipe.

Checking joint for proper assembly. This is done with a simple gauge immediately after the joint is made . . . *before backfilling.*

JOHNS MANVILLE JM PRODUCTS

Johns-Manville TRANSITE SEWER PIPE

CHECK THESE . .

digs 17 deep

PARSONS CRAFT QUALITY SEHRING PRODUCT

PARSONS Trenchliners

. . PARSONS 310

TRENCHLINER

Big

PRODUCTION ADVANTAGES

- **Wide Work Range** . . . Model 310 digs 1½ to 4½′ wide at 17′ depth . . . and up to 6′ wide at 11′ depth.
- **16 Cutting Widths** with single boom, 5 additional with dual boom.
- **45 Digging Feeds** produce 8″ to 15′-6″ of trench per minute.
- **Shiftable Boom** for offset digging, cuts within 15″ of either side.
- **Telescopic Boom** locks at 14″ intervals for quick depth changes.
- **"Tap-In" Teeth** . . . easy-in, easy-out, self-sharpening, reversible.
- **1-Min. Power-Shift Conveyor** discharges spoil to right or left.
- **Friction Clutch** controls digging, boom hoist, steering, traction, engine.
- **Automatic Safety Clutch** protects all machinery from shock loads.
- **Tractor-Type Crawlers** are self-cleaning . . . 3-point suspension mounting provides 8″ oscillation.

Your Parsons distributor can show you many other heavy-duty features on this big 310 Trenchliner. Ask, too, about 3 smaller Parsons models: ladder and wheel types, full crawler mounted, and utility-size Trenchliner on rubber tires.

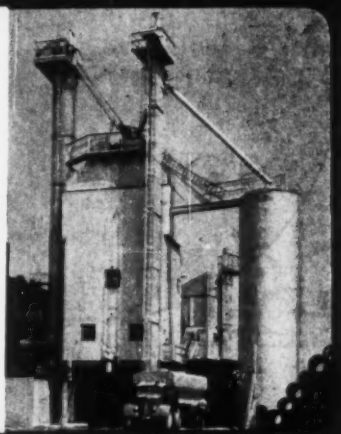
PARSONS COMPANY
Newton, Iowa
(KOEHRING SUBSIDIARY)

This low-cost power wheelbarrow, with 10 cu. ft. (struck) hopper, has a 1500-lb. load-carrying capacity . . . climbs 20% ramps fully loaded with operator riding on rear step. Hopper has instant gravity dump with snub-line control. There's full power forward and reverse . . . no push, no pull necessary. 3.6-to-1 gear ratio on large steering wheel gives effortless maneuvering. Interchangeable units: flat bed, 5-foot fork lift, scraper.

KWIK-MIX (Koehring Subsidiary)
Port Washington, Wis.

To meet your exact production requirements, Johnson Central-Mix Plants are available with a choice of 7 types of bins, ranging from 50 to 3000-cu. yd. storage capacities for aggregates and cement. For example, all-welded Portable Section Bins in 100 to 200-yd. sizes, have 4 aggregate and a central compartment for 1 or 2 types of cement. Also check Johnson batchers, silos, elevators, conveyors, hoppers, buckets.

C. S. JOHNSON (Koehring Subsidiary)
Champaign, Ill.



On grades as steep as 30%, there is no need to block the crawlers on this Koehring 205. Big friction brakes, controlled from cab, securely hold both crawlers . . . provide necessary flexibility to cushion brake assembly against operating shocks. No blocking saves time on every job. For excavators or cranes, check your Koehring distributor . . . 4 heavy duty sizes, 7¾ to 79½ tons lift capacity, ½ to 2½-yards dipper capacity.

KOEHRING COMPANY
Milwaukee 16, Wis.

X62

Lufkin chrome-clad steel tapes are stronger—more durable because they are built up with a series of platings that become an integral part of the line. They are easier to read because jet black markings and figures stand out sharp and clear against the chrome white background.

The "Anchor" chrome-clad tape has a genuine leather case, hand stitched, Mahogany color. Case liner is of coated steel, rust and corrosion resistant. Plated trim. No protruding winding handle as it winds with a folding flush handle opened with a push pin.

Strength, durability, accuracy, and beauty are all combined in the "Anchor" tape. Order the "Anchor" from your nearest supply house.

BUY LUFKIN

161

TAPES • RULES • PRECISION TOOLS
From Your Supply House

THE LUFKIN RULE CO., Saginaw, Michigan
132-138 Lafayette St., New York City • Barrie, Ont.

5. Plan of costs and financing.

Administrator approves contract for temporary loan and capital grant.

• **Temporary loans and capital grants**—The temporary loans are repayable to the federal government with interest. The local agency must get the money for this repayment from the sale of land in the project area to private developers, from federal capital grant funds, from local grants-in-aid in cash and any other income derived from the project. Larger cities have avoided these loans.

The capital grants are federal monies equal to two-thirds of the difference between the cost of acquiring and clearing the project area and the new value of the improved area.

Grants-in-aid are credited to the locality when they are facilities—parks, playgrounds, public buildings, engineering works—of direct benefit to the new project.

• **Project gets under way**—Local public agency uses temporary loan funds to carry out project. Local grants-in-aid are provided.

Private enterprise is attracted to the redeveloped site and submit bids for purchase of land, or lease of land.

• **Long-term loan**—A portion of the project area is to be leased for redevelopment, and the local agency applies for a long-term loan to finance that portion of the project.

Administrator approves contract for long-term loan.

• **Finished**—Project is finally completed and project costs are finally determined. Local public agency completes provisions of local grants-in-aid; long-term loan is completed; federal capital grant is paid to locality; temporary loan is repaid to government.

The law emphasizes local initiative, local responsibility and local operation. These projects are conceived, planned, and carried out locally.

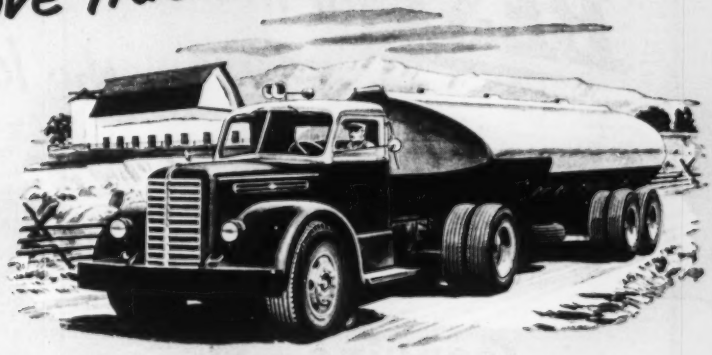
The law is not intended as a housing bill. The redeveloped area can be used for commercial, industrial, or residential purposes or any well-planned combination of uses. It is only necessary that the blighted area to be removed be primarily residential and that private developers be interested in buying or leasing parts of the area once the slums are eliminated.

• **The money pool**—The federal government has provided two pools of money to help the local community acquire and clear blighted areas, and to prepare plans and surveys.

The capital grant fund amounts to $500 million.

Loan fund amounts to $1 billion.

Improve Truck Performance!



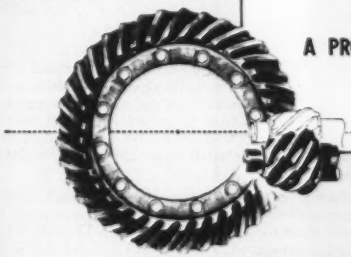
Go modern with

Here's One More Reason Why!

TIMKEN *Detroit* AXLES

A PRODUCT OF THE TIMKEN-DETROIT AXLE COMPANY

DETROIT 32, MICHIGAN



The Accepted D A CO *Standard*

TRADE MARK REGISTERED

HYPOID HEAVY-DUTY GEARING

These are busy times—*and profitable times*—if your truck can *produce* whenever it's needed—wherever it's needed! And the truck men who are making the most of today's profitable business—*and their equipment*—use trucks equipped with Hypoid-geared Timken-Detroit Axles.

This modern axle gearing boosts truck performance—provides extra dependability for rapid, long-distance hauls. The offset Hypoid pinion is bigger and stronger. Bearings are bigger. More teeth are in contact, reducing loading per unit of contact area. Torque-transmitting capacity is increased. Slower gear ratios are practical without loss of strength. What's more, time-proved Hypoid gearing adds miles to the life of your truck, at lower maintenance cost.

Whether you build, buy or sell trucks, make sure they're equipped with Timken-Detroit Axles and Brakes! You'll find Hypoid gearing an important advantage.

WORLD'S LARGEST MANUFACTURER OF AXLES FOR TRUCKS, BUSES AND TRAILERS

PLANTS AT: Detroit and Jackson, Mich. • Oshkosh, Wis. • Utica, N. Y. • Ashtabula, Kenton and Newark, Ohio • New Castle, Pa.

BEST for the first run!

BEST in the long run!

Genuine TIMKEN Detroit AXLE PARTS

The Accepted D A Co Standard

TRADE MARK REGISTERED

Look for this sign

You bought trucks equipped with Timken-Detroit Axles for a reason! Because they were equipped with the best, most dependable truck axles made! Don't sell yourself short when it comes to buying axle replacement parts. Install *only* genuine Timken-Detroit Original Equipment Parts whenever replacement parts are needed.

The more important, more widely used of these parts are packaged in handy kits to help you do an easier, longer lasting, more complete replacement job. These kits also protect the parts against moisture and rough handling—to make sure the new parts reach you in the same condition in which they left the factory. What's more, Timken-Detroit Parts Kits contain *all* the essential related parts to do a "factory-type" replacement job.

Always insist on genuine Timken-Detroit Axle Replacement Parts when new parts are needed. You'll find them wherever the Timken-Detroit Axle Parts sign is displayed.

The Timken-Detroit Axle Company • Detroit 32, Michigan

MAIL THIS COUPON FOR THE FULL FACTS ON TIMKEN-DETROIT AXLE PARTS KITS

The Timken-Detroit Axle Company
100 N. Clark Street, Detroit 32, Michigan

Gentlemen: Please send me complete information on Timken-Detroit Axle Parts Kits.

NAME_____

ADDRESS_____

CITY_____ STATE_____

I operate_____ (Number of trucks)

Civil engineer mayor honored in Miami

Mayor Chelsie J. Senerchia, first engineer ever to serve as the City of Miami's chief executive, was guest of honor at a banquet given by the Professional Engineers Association of Southeast Florida in observance of Engineers' Week.

A citation was voted to Senerchia by the association for "outstanding service to the engineering profession."

For Senerchia, the banquet was a triumph with additional meaning added to the honor paid him by his profession. Eight months before, he had left Miami's city hall and jobs as city manager and engineer.

Senerchia then filed as a candidate for the commission and led a field of 25 candidates in the November 20, municipal election. He was elected mayor in pursuance of a custom which decrees that the high man in municipal elections be appointed mayor.

As city manager, Senerchia couldn't practice his profession, but as mayor, he can and does.

Born in West Warwick, R. I., Senerchia was educated at Brown University. He moved to Miami in 1921 and has had a hand in many of the area's biggest engineering jobs since then.

His dismissal as city manager stemmed from matters not connected with the engineering division.

The man who succeeded him as acting city manager offered Senerchia his old job as city engineer, but he refused it.

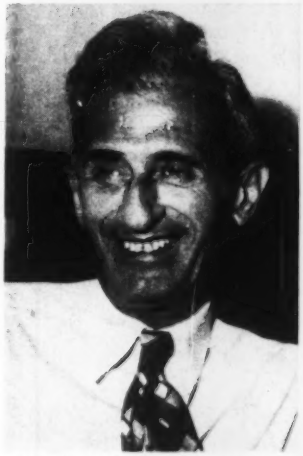
He is a member of the Florida Engineering Society, Professional Engineers Association and Society of Military Engineers.

Fire insurance company promotes civil engineer

Walter W. Corry of West Hartford, Conn., was elected executive vice-president and secretary of the National Fire Insurance Company of Hartford.

Mr. Corry, a civil engineer, graduated from Rensselaer Polytechnic Institute, Troy, N. Y. in 1914. Following graduation he worked with New York Public Service Commission for three years on subway construction. For two years after that he was hydraulic engineer for the National Board of Fire Underwriters.

He then joined the Rating Bureau in Arkansas. After one year in that state, Mr. Corry joined the National Fire Insurance Company. In 1929 he was made assistant secretary, progressing through various offices to vice-president and secretary in 1943.



CHELSIE J. SENERCHIA, civil engineer and mayor of Miami, Fla.

Professor Conner named director of research

Professor N. W. Conner, acting director of the department of engineering research in the school of engineering at North Carolina State College, Raleigh, N. C., since last fall, has been director of the department.

A member of the faculty since Sept. 1937, he is widely known for his research and teaching achievements in the field of engineering, and succeeds Dr. W. G. Van Note, who resigned to become president of Clarkson College of Technology in Potsdam, N. Y.

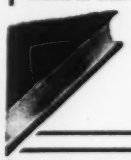
In his new capacity, he will be the chief administrative officer of the college's department of engineering research, which co-ordinates the experimental work and the research facilities of all departments within the school of engineering.

Before going to N. C. State he was a member of the faculty of the engineering school at Virginia Polytechnic Institute at Blacksburg, Va. Professor Conner was born in Blacksburg. He obtained his engineering degrees from V.P.I., and Iowa State College.

(Continued on page 86)

PILE FOUNDATIONS

Just Published



1. **Provides the information required** for the design, driving and maintenance of pile foundations. Covers the relations between borings, soil mechanics, and pile foundations; the most effective methods for determining pile capacities from driving resistances and friction values; the selection of rigs; the factors affecting choice of pile type, etc. One chapter supplies over 50 actual cases of pile foundation failures, with causes, methods of prevention, and remedies. **By Robert D. Chellis, Structural Eng'r., Stone & Webster Corp., 640 pages, illus., $12.50**

SOIL MECHANICS, FOUNDATIONS, AND EARTH STRUCTURES

Just Published

2. **Covers the theory of soil mechanics,** together with the principles and practices of designing and constructing foundations and earth structures—indicating the important relationship of these 3 subjects. Emphasizes experimental data and field observation, giving numerous examples of both successful and unsuccessful structures. Covers the estimation of the shearing strength of soils, lateral earth pressures, the effects of plastic flow, sensitivity of various clays to remolding, etc. **By Gregory P. Tschebotarioff, Prof. of Civ. Eng'g., Princeton Univ. 655 pages, over 400 illus., $7.00**

ADVANCED ENGINEERING MATHEMATICS

Just Published

3. **Provides a reference and guide** on the branches of mathematics which the engineer must understand and use in his daily work. Covers ordinary differential equations, with particular emphasis on linear equations with constant coefficients; Fourier series, operational calculus, separable partial differential equations and associated boundary value problems, functions of a complex variable, vector analysis, and numerical methods. A special chapter provides data and information on mechanical and electrical vibrations, showing how mathematics is applied to these two fields. **By C. R. Wylie, Chairman, Dept. of Math., Univ. of Utah. 640 pages, 105 illus., $7.50**

BUCKLING STRENGTH of METAL STRUCTURES

Just Published

4. **Gives dependable data on the behavior of fabricated steel structures under compression loading,** especially applicable in structural and ship design. Covers a wide range of subjects from the buckling of centrally or eccentrically loaded members to special problems in ship-plating design. Presents many simplified approximate formulas for the first time; treats many new developments, such as those in the field of inelastic stability. Supplies useful methods of analysis based on study of all available data on the subject. **By Frederick Bleich, Late Consulting Eng'r. 508 pages, 263 illus., $10.00**

SEE THESE BOOKS 10 DAYS FREE

McGraw-Hill Book Co., 330 W. 42nd St., NYC

Send me book(s) checked below for 10 days' examination on approval. In 10 days I will remit for book(s) I keep, plus a few cents for delivery, and return unwanted book(s) postpaid. (We pay for delivery if you remit with this coupon; same return privilege.)

☐ 1. Chellis—PILE FOUNDATIONS, $12.50
☐ 2. Tschebotarioff—SOIL MECHANICS, $7.00
☐ 3. Wylie—ADVAN. ENG. MATH., $7.50
☐ 4. Bleich—BUCKLING STRENGTH, $10.00

(Print)
Name.....

Address.....

City..... Zone.... State.....

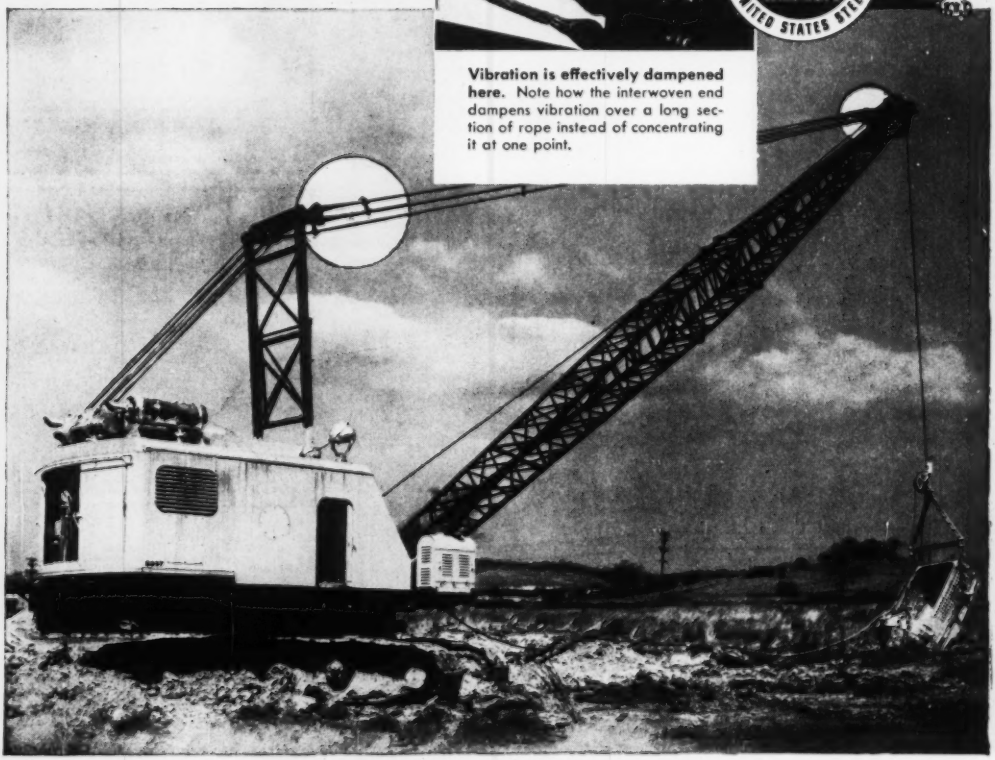
Company.....

Position.....NR-3-6-52

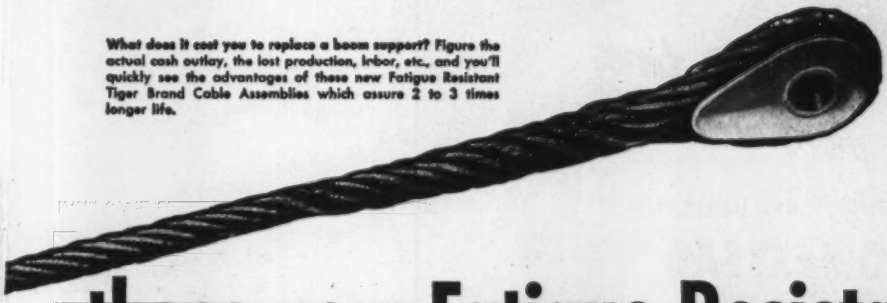
This offer applies to U. S. only

Your boom support costs can be cut in half with

Vibration is effectively dampened here. Note how the interwoven end dampens vibration over a long section of rope instead of concentrating it at one point.



What does it cost you to replace a boom support? Figure the actual cash outlay, the lost production, labor, etc., and you'll quickly see the advantages of these new Fatigue Resistant Tiger Brand Cable Assemblies which assure 2 to 3 times longer life.



these new Fatigue Resistant TIGER BRAND Cable Assemblies

***An exclusive development of* AMERICAN STEEL & WIRE DIVISION**

Why these boom supports last 2 to 3 times longer. Excessive vibration is the chief cause of boom support failure. In old style boom supports, vibration is concentrated at the *point* where the rope enters the socket. This causes the wires to break from fatigue. In this new assembly, the effects of vibration are dissipated over a long section instead of being concentrated at one point. The result is two to three times longer life for boom supports and much greater safety.

The new Tiger Brand Assembly has a novel design which embodies *interwoven* eye-end and open-end thimbles which makes these pendants easily and quickly interchangeable on standard equipment.

You also save replacement time. If the machine is down for two or three hours while new boom supports are being installed, you lose that much production time. Longer life from our new supports *results* in fewer replacements. This means clear profit if you use the new Tiger Brand Supports.

Order your next boom supports now. The new Fatigue Resistant Boom Supports can be easily and quickly adapted to your present equipment because essential dimensions such as pin diameters, distances between ears, etc. are the same as for standard open and closed sockets. Send the coupon for complete information.

American Steel & Wire Division
Rockefeller Building, Dept. A-32
Cleveland 13, Ohio

Please send me complete information on your new Tiger Brand Boom Support Assemblies.

Name.....

Title.....

Company.....

Address.....

City.....State.....

AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL COMPANY
GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL

Up to 22 times more operations

WITHOUT RE-LUBRICATING

HOMESTEAD REISER

Self-Sealed

LUBRICATED PLUG

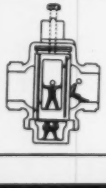
VALVES

TEST RECORD	NO. OF OPERATIONS Without RE-LUBRICATING
VALVE	
VALVE "A"	5
VALVE "B"	33
HOMESTEAD-REISER VALVE	110

Each valve assembled with the manufacturer's recommended lubricant. Test made on 75 lb. air pressure.

This comparative test of a Homestead-Reiser Valve and two other well-known lubricated plug valves showed that the Homestead-Reiser Valve remained drop-tight through twenty-two times more operations than Valve "A" without re-lubricating, and through three times as many operations as Valve "B". That means that Homestead-Reisers require less attention, and give greater economy of lubricant.

Prove the superiority of Homestead-Reiser Valves to your own satisfaction, by installing a few side by side with any other lubricated plug valve. They may be had in both semi-steel and cast-steel; sizes ½" to 14"; FULL PORT or VENTURI TYPE for steam working pressures to 150 pounds, or oil-water-gas to 200 pounds.



"Self-Sealed" MEANS . . . that in addition to a full lubricant seal around the ports, and around the top and bottom of the valve, the wedge-action of the divided plug under line pressure, causes the finely-finished surfaces of both segments of the plug to press outward against the sealing surfaces of the body. This self-sealing action keeps the plug surfaces in contact with the mirror-like bore of the body. The plug automatically adjusts itself for wear, thus assuring extra long life and maximum leakless service.

Write for new catalog 39-5

HOMESTEAD VALVE MANUFACTURING CO.

"Serving Since 1892"

P. O. Box 31 Coraopolis, Pa.

Men and Jobs . . .

Careers . . .

• **Appointed**—Col. F. T. Matthais, 43, an American engineer, has been appointed assistant to **P. E. Bradley**, project manager in British Columbia for Aluminum Co. of Canada, which is engaged in the first phase of a $550-million hydro-refinery project in northern British Columbia . . . **J. K. Shankland**, member of the regional design and construction division force, Bureau of Reclamation, has been named chief of the division's construction branch at Boulder City, Nev. . . . **Harry G. Elletson**, 49, Benton county highway engineer for the past 26 years, has been installed as district maintenance engineer for District No. 7 of the State Highway Department of Minnesota . . . **Col. Howard V. Canan** has been assigned to a newly-created post as Engineer Inspector General in the Office of the Army Chief of Engineers. Inspector general offices are being established within each of the technical services as part of an improved system for inspecting Army procurement and accounting activities.

• **Elected**—**T. Moffatt**, Diblee Construction Co., Ltd., Ottawa, Can., was elected president of the Ontario Road Builders Assn., at its annual convention at Toronto.

• **Honored**—Top men in the construction industry packed The Moles' twelfth annual award dinner in New York City, to join in honoring **Stephen D. Bechtel** and **Charles B. Spencer** for "outstanding achievement in construction." The awards are given annually by The Moles, an association of leaders in tunneling and heavy construction work. **Bechtel**, president of Bechtel Corp., San Francisco, was recipient of The Moles' non-member award. **Spencer**, president of New York's Spencer, White & Prentis, Inc., was the winner of the member award. The society also presented honorary membership to **Gen. Lucius D. Clay**, former Army engineer and military governor of the American zone in Germany, who is presently chairman of the board of Continental Can Co.

• **Retired**—**Prof. William H. Rayner**, civil engineering department, University of Illinois, will retire as of September 1. Also retiring at the same date will be **Prof. Fred B. Seely**, head of the department of theoretical and applied mechanics, who has been at Illinois since 1909 and head of the department since 1934.

to move more, faster... use more of your engine's hp.

The formula for moving any load at higher average speeds, *for less,* is simple:

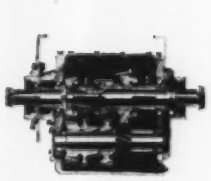
Put your horsepower to work *effectively.*

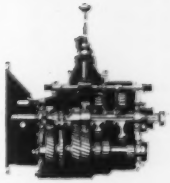
Every time you lug your engine, or even let it drop below the maximum efficiency range, you lose profits.

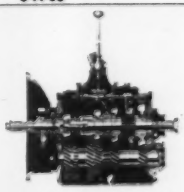
That's why the *right* transmission for your "road and load" is so important. That's why so many profit-wise operators specify Fuller Heavy-Duty Transmissions, Fuller Auxiliary Transmissions—and Fuller 10-Speed ROAD RANGER® Transmissions.

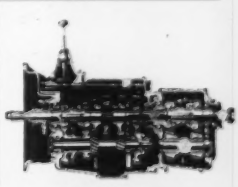
For the transmission is where *horsepower goes to work.* And Fuller has proved, time and again, to owner, to mechanic and to driver that Fuller Transmissions gear your rig to use more of your horsepower—to move more, faster, for less.

Illustrated are four of the wide selection of Fuller Heavy-Duty Transmissions. Ask for data on the type and hp.range in which you are interested.


3-A-65

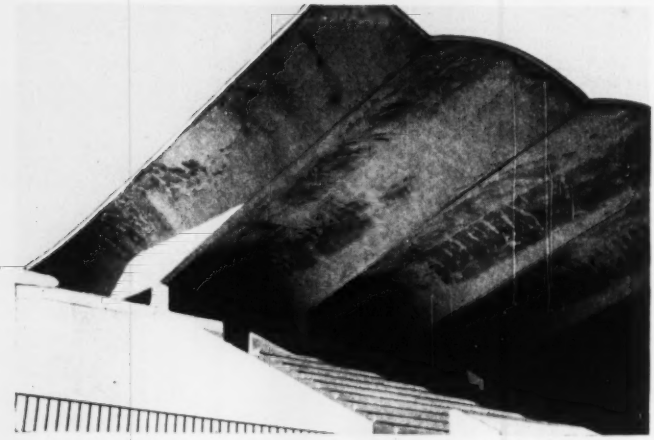

5-A-620


5-C-720


10-B-1120

FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO 13F, MICHIGAN

Unit Drop Forge Division, Milwaukee 1, Wis. • WESTERN DISTRICT OFFICE (SALES & SERVICE—BOTH DIVISIONS), 1060 E. 11th Street, Oakland 6, Calif.



In this shell-concrete roof, each scallop serves as a beam, permitting a 42' cantilever over spectator stands.

Look how it goes together . . .

Although the specific gravity of concrete is comparable to aluminum, the U.S. annually uses many more tons of concrete than of all iron, steel, lead, zinc, copper, aluminum and other metals, all brick, lumber, tile and glass combined.

Equally remarkable, concrete is poured in many batches, each composed of innumerable particles of aggregate and cement. Yet architects and engineers depend on it to produce homogeneous structures, *which it does, provided all batches have been properly and completely mixed.*

This is why the ready-mixed concrete industry sets exacting standards for mixer design, and certifies to you that truck mixers and agitators, built to those standards, have the proper design, capacity, drum speed and mixing action and the accuracy of water control required to produce a homogeneous concrete of uniform strength.

Look for this Badge of Dependability on Truck Mixers: You have a right to insist on this Rating Plate on any truck mixer that serves your jobs. It is available to all who comply with the quality standards established by the National Ready Mixed Concrete Association and the Truck Mixer Manufacturers Bureau.

These member manufacturers comply with Bureau standards:

BLAW-KNOX DIVISION
Pittsburgh, Pa.
CHAIN BELT COMPANY
Milwaukee, Wis.
CONCRETE TRANSPORT MIXER CO.
St. Louis, Mo.
THE JAEGER MACHINE COMPANY
Columbus, Ohio
THE T. L. SMITH COMPANY
Milwaukee, Wis.
WORTHINGTON PUMP & MACHINERY CORP.
Dunellen, N.J.

PHOENIX BRIDGE COMPANY

Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS

General Office and Shops
PHOENIXVILLE, PA.

Subsidiary—Serium Steel Corporation

"GUNITE" CONCRETE
(Since 1915)

FOR • STEEL PLATE LINING • STEEL ENCASEMENT • BUILDING NEW WALLS • LINING WATER RESERVOIRS, TUNNELS AND SEWERS • PLATE LINING OF STEEL STACKS, BUNKERS, DUCTS • REPAIR OF DISINTEGRATED CONCRETE AND MASONRY • CANAL, DITCH AND DRAIN LINING

GUNITE CONCRETE & CONST. CO.
1301 Woodswether Rd., Kansas City 6, Mo.

District Branch Offices

Paul B. Watts, 228 N. LaSalle St., Chicago 1, Ill.
George R. Lewis Co., 2036 Queen Ave. S., Minneapolis 5, Minn.
B. H. Mueller Co., 6625 Delmar Blvd., St. Louis 5, Mo.
Ole K. Olsen Co., 823 Perdido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.

OBITUARIES

Lt. Col. Joseph S. Crane, U. S. Army (Ret.), 69, died in Washington, D. C., Feb. 12. He was a civil engineer graduate of Princeton and started as a consultant engineer in New York but joined the Army Engineers in 1918 and remained on active duty till 1924. Again in 1940 he was recalled to active duty to help blueprint the expansion of our military establishments during the war.

Robert Colfax Smith, 79, civil engineer, died recently at Weslaco, Tex. He was graduated from Purdue University in 1897, and soon thereafter went to Panama where he worked for the government on foundation studies for the Panama Canal. Later he was employed in Chicago on foundation work and became an authority on foundation conditions there. During the first World War as a major in the Construction Quartermaster Corps he supervised construction at ports and cantonments.

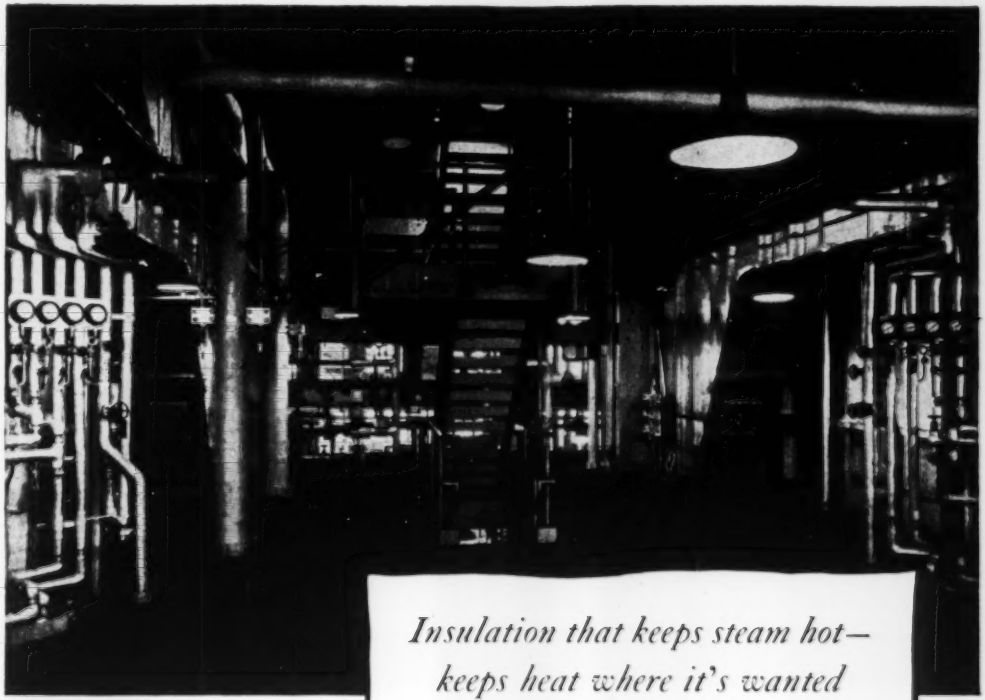
Wm. R. Stanley, civil engineer with the Michigan highway department for 32 years, died at Harrison, Mich., Feb. 10.

Clarence C. Ebbe, 69, Trenton, Mo., contractor who had built many miles of state roads and a number of power plants, died Feb. 13.

Earl J. Bullis, 68, of Rochester, N. Y., senior civil engineer in the New York State Department of Public Works District 6 office at Hornell, died Feb. 19. He was a graduate of the University of Rochester in 1910. He had been an assistant engineer in the Rochester office of the State Department of Public Works for many years and was transferred to Hornell in the "southern tier" in 1949.

John Howard Hopkins, 69, of Laurel, Md., a civil engineer in the Highway Transport Research Branch of the United States Bureau of Public Works died on Feb. 19. He was graduated from Swarthmore College in 1902. He went to Washington in 1924 where he joined the Department of Commerce and was engaged in engineering work.

Spencer J. Sutherland, 64, who was principal assistant engineer of the engineering bureau of Yonkers, N. Y., when he retired four years ago, died there Feb. 25. He served the city for 30 years. He was a graduate of New York University.



Large eastern power station:
Piping insulated with "Featherweight" 85% Magnesia, sewed canvas jacket; ducts with 1½" "Featherweight" blocks and ½" thickness of cement.
Insulation Contractor:
Armstrong Cork Company.

Insulation that keeps steam hot—
keeps heat where it's wanted

•

"FEATHERWEIGHT" 85% MAGNESIA

—insulation that delivers more steam at less cost! For more than 60 years "Featherweight" 85% Magnesia Insulation has been known throughout industry for outstanding efficiency in all heating applications up to 600° F. You'll find it in power stations and steamships, in hospitals and food processing plants, in oil refineries and chemical installations—in fact, wherever exacting steam temperature control is a must.

And "Featherweight" 85% Magnesia not only gives you efficiency, but also extreme durability. It is structurally strong; can withstand reasonable amounts of compression, vibration, and contact. Physically inert, "Featherweight" will not spall or crack when subjected to the alternate heating and cooling of steam system start-ups and shut-downs. And, being entirely mineral in nature, it will not burn. In short, it is difficult to overestimate the efficient life of "Featherweight" 85% Magnesia. In most cases, it will outlast the heating system!

Your Keasbey & Mattison Distributor, who is an experienced applicator, will be glad to give you complete information on "Featherweight" 85% Magnesia. Or, write us direct.

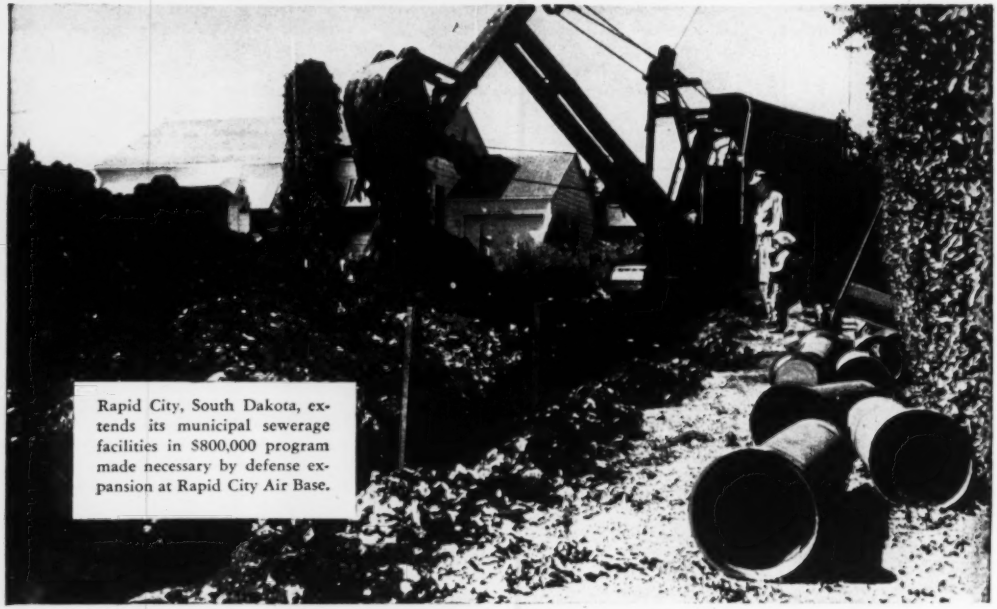
K&M best in asbestos ®

Nature made Asbestos . . .
Keasbey & Mattison has made it serve mankind since 1873

KEASBEY & MATTISON

COMPANY • AMBLER • PENNSYLVANIA

CLAY PIPE—*ESSENTIAL* ★ *ECONOMICAL* ★ *EVERLASTING*



Rapid City, South Dakota, extends its municipal sewerage facilities in $800,000 program made necessary by defense expansion at Rapid City Air Base.

15 Miles of CLAY PIPE GO INTO RAPID CITY MUNICIPAL SEWER EXPANSION

Over 15 miles of Vitrified Clay Pipe, in sizes ranging from eight to 33 inches, are being installed to give sewerage facilities to some 900 new homes in Rapid City. Clay Pipe provides these new residents with *permanent* sanitary service—a never-wear-out system that will guard the city's health for years and decades to come.

Clay Pipe is the *only* pipe that's unaffected by acids and alkalies . . . by rust, rot, decay, or sewage gases. It's the one chemically-inert pipe that has *proved* its resistance to chemical action through actual performance in the ground. Don't take chances with substitute sewerage materials. Specify Vitrified Clay Pipe . . . *it never wears out!*

NATIONAL CLAY PIPE MANUFACTURERS, INC.

311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
206 Connally Bldg., Atlanta 3, Ga.

Vitrified Clay Pipe . . . Specified Wherever Reliable, Performance-Proved Pipe Is Needed

Orlando, Fla. (Air Force Base)	74,000 ft.	Needles, Calif. (Essential Ore)	87,000 ft.
Morrisville, Pa. (New Steel Defense Plant)	300,000 ft.	Hartford, N. Y. (Electronic Plant Expansion)	50,000 ft.
Eynon, Pa. (Gun Fire Control Plant)	120,000 ft.	Willow Springs, Ill. (Jet Engine Plant Expansion)	16,000 ft.
Marion, N. C. (Municipal Sewerage)	32,000 ft.	Limestone, Me. (Air Force Base)	65,000 ft.

Vitrified CLAY PIPE (CLAY PIPE NEVER WEARS OUT!)

C-652-3

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
April Materials, and Labor Prices will appear in April 10, 1952 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block	CONCRETE Ready Mixed 1:2:4, over 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, ¼ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	¾ in.	Sand	Sand, grav	Lt. wgt. aggr.	
Atlanta	$3.75	$3.45	3.25	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.191	$0.191	$11.50
Baltimore	3.71	3.40	3.35	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	10.80
Birmingham	3.11	2.68	2.82½	2.24n	2.24n	1.94n	2.50	2.50	1.10	1.30	.165	.165	7.85
Boston	4.01	3.69	3.81	2.50a	2.50n	2.50a	1.50a	1.60a	....	....	.206	.22a	11.50h
Chicago	3.29	2.99	3.94	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	12.00
Cincinnati	3.53	3.23	3.32	2.00‡e	2.00‡e	2.05‡e	2.35‡h	2.35‡h	....	....	.21	.225a	11.45f
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.70	3.81a	3.81a	2.85‡	2.85‡	....	.23	13.00g
Dallas	2.95	2.65	2.70	2.18	2.28	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.80	3.64	3.89	1.85	2.00	1.20	....	....	....	....	.22	.255a	10.50
Detroit	3.27f	3.00	3.05	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.30f
Kansas City	3.30	3.03	3.15	1.85‡	1.85‡	1.50a	2.00‡a	2.00‡a	....	....	.23ag	.23e	11.20h
Los Angeles	4.00g	3.60a	4.72	1.95a	2.20a	1.95a	2.08a	2.08a	....	....	.11fm	.22m	10.43hm
Minneapolis	3.73d	3.42d	3.36	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.23ik	....	11.75fk
Montreal	3.01ae	2.86ae	....	2.50	2.50	2.25	1.05ij	1.30ij	....	....	.20	.20a	10.40ek
New Orleans	3.20e	2.90e	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.81	3.50	3.40	2.35bk	2.35bk	1.60bk	2.50bl	2.50bl	....	....	....	....	11.55an
Philadelphia	3.38/3.77‡	3.07/3.44‡	3.38/3.43‡	2.65‡	2.75‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32	3.04	3.32	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	11.00
St. Louis	3.27/3.48b	2.84/3.10b	3.05/3.22	2.90am	2.70am	2.30/2.70am	1.70j	1.70j	1.25	1.25	.215	.27en	10.75
San Francisco	3.35	2.95	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.22el	10.30e
Seattle	3.80a	3.25a	4.50n	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24f	.3325f	10.95f

‡ Delivered. * Prices incl. dealers comm. except as noted.

CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers' comm. not incl. *d* Dealers sell only LCL. *e* Plus switching charges. *f* Paying up to $3.80 for cement brought in from outside sources. *g* Warehouse pickup. *h* LCL.

SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ¼". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots and. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars.

CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5½ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *k* 8x8x18. *l* F.o.b. plant San Rafael. *m* F.o.b. yard.

READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *e* 2,000 lb. conc. *f* 2500 lb. conc. *g* Aver. haul 7–9 mi. zone. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.60†	Buffington, Ind	$2.55†	Steelton, Minn	$2.65†	Muskegon, Mich	$2.70†	Toledo, O	$2.60†
Clinchfield, Ga	2.60†	Independence, Kan	2.50†	Leeds, Ala	2.45†	Saginaw, Mich	2.60†	Milwaukee, Wis	2.75†
Kingsport, Tenn	2.60†	Hannibal, Mo	2.55†	Duluth, Minn	2.65†	Wyandotte, Mich	2.60†	Green Bay, Wis	2.75†
West Des Moines, Iowa	2.65†	Northampton, Pa	2.60†	Hudson, N. Y	2.60†	Buffalo, N. Y	2.60†	Ironton, O	2.60†
Nazareth, Pa	2.60†	Universal, Pa	2.65†	Alpena, Mich	2.50†	Oswego, N. Y	2.75†	Montreal City	2.61
Bath, Pa	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich	2.60†	Cleveland, O	2.60†	W. Winfield, Pa	2.65†

† *Prices to hold for first quarter of 1952.*

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration Tank car	Drums	CUTBACK ASPHALT Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION (Quick-breaking) Per gal. Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	$26.00	$32.25	$0.1975	$0.339	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	57.70‡	.....	22.00	.....	.080g	0.15	.09w	.17w	.09s	.09	0.12
Birmingham	.....	45.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	35.50a	22.00ar	35.50ar	.....	.....	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bs	29.25bs	.0875bw	.16bw	.075b	.....	.....
Cincinnati	.....	.....	.....	22.50B	.....	.....	.....	10w	.....	.....	.11w	.....
Cleveland	200.00	53.00d	4.12g	23.00A	.....	23.00A	.....	1025Aw	.194w	.....	.11w	.194
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	48.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.82	.....	26.82r	.....	.117w	.....	.0925	.....	.270r
Kansas City	e	e	e	18.55el	....	.....	.....	.0725w	.....	.0635e	.....	.....
Los Angeles	e	.....	e	15.50dmz	....	15.50dxz	.....	17.00dz	.....	16.00dx	.0825fj	.1525fj
Minneapolis	.....	.....	2.83h	23.90	.....	22.90	.....	.0994w	.....	.0894	.1035	.....
Montreal	.....	e	e	27.10n	36.65n	.135n	.183n	16.30nu	18.80nu	.132n	.184ns	.225ns
New Orleans	.....	.....	.....	17.50a	.....o	17.50ar	.....o	.085ew	.....o	.0882	.085	.....
New York	.....	.....	3.12f	26.26q	47.50q	25.20at	46.58at	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.095w	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.20	27.00	39.00	.095	.09	.205
St. Louis	.....	.....	.....	19.25f	.....	.1698	.....	.0865	.089w	15	.....	.....
San Francisco	.....	‡ 55.00e	.....	17.00g	32.50gp	17.00gkr	32.50gkr	19.00kz	36.50g	17.50w	.085g	.....
Seattle	.....	.....	.....	17.00A	37.50A	16.25Ar	.....	19.50A	.....	18.50Ar	.095A	.105Ar

‡ Delivered.

PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6½ treat. *g* 3". *h* 8½ treat. *i* 3 x 3⅝ x 8½.

ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood Riv r or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Inglewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* 40–85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85–300 penetr. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks. *y* F.o.b. Oakland. *A* F.o.b. refinery Cleveland. *B* *F.o.b. Lalonia, Ky.*

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.65	$3.70	$3.70	$7.85	....	$72.00	$80.00	Not	$4.70	$6.15	$4.50	....
Chicago Area	3.65	3.70	3.70	7.85	$4.45	72.00	80.00	avail-	4.70	6.15	4.50	....
Pittsburgh Area	3.65	3.70	3.70	7.85	4.45	72.00	80.00	able	4.70	6.15	4.50	$9.85
Buffalo Area	3.70	3.70	3.70	7.75	4.45	72.00	80.00	....	4.70	6.15	4.50	9.85
Cleveland	....	....	3.70	7.85	....	.....	.....	....	....	....	....	9.85
Youngstown Area	....	....	3.70	....	....	.....	.....	....	....	6.15	....	....
Geneva	3.65	3.70	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	4.40	....	....	.....	.....	....	....	6.15	....	....
Pueblo	3.65	3.70	3.70	....	....	72.00	80.00	....	4.70	6.15	4.50	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price *u* 5 tons to carload lot *b* New billet	Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATH *c* Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING *d* Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta	$6.80	$6.65	$6.65	$.025	$.10	$31.50	$31.50			
Baltimore	6.15	5.49*f*		.10	.10	42.00	45.00			
Birmingham	5.70	5.75	5.75	.05	.15	47.00*p*	52.00*p*			
Boston	6.20*q*	6.19	6.19	....	.15	40.50	44.50			
Chicago	5.70	4.95*ff*	4.95*ff*	.0625	....	33.50	37.50			
Cincinnati	6.24*kk*	5.84*r*	....	....	.15	38.50*zee*	41.00*zee*			
Cleveland	5.95	4.81*p*	....	....	.10	37.00‡	40.00‡			
Dallas	8.85	7.00	7.00	....	....	49.00	52.00			
Denver	7.20	7.10*e*	....	....	....	60.00*s*	72.00*ss*			
Detroit	6.09	5.74*n*	....	....	.20	53.00	58.00			
Kansas City	6.30*mn*	5.90*ll*	....	....	....	39.50	41.50			
Los Angeles	6.41/*hh*	6.21*q*	....	....	.15	48.00	54.00*kk*			
Minneapolis	6.15*hh*	7.12*ll*	7.12*ll*	....	.30	37.00	39.50			
Montreal	6.55*tt*/6.75*t*	4.75*i*	4.75*p*	....	....	44.10*h*	46.80*h*			
New Orleans	....	5.55*nk*	....	.05	.10	40.00	40.00			
New York	6.50*r*	6.25	6.25	....	.30	38.50*ss*	45.00*ss*			
Philadelphia	5.90	5.95	....	....	....	38.00‡	42.00‡			
Pittsburgh	5.40/5.60	5.40-5.60	....	....	.10	34.00	36.00			
St. Louis	6.03*a*	5.34*e*	5.34*e*	....	....	47.00*aa*	53.00*aa*			
San Francisco	7.15*ii*	6.50*l*	....	....	.15	40.50	43.50			
Seattle	4.30*e*	5.55*nl*	....	....	....	57.00*mm*	47.00*mm*,*x*			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.66
F.o.b. Mill: Monessen, Penn., $2.76

A.P.M.* Joliet, Illinois, Donora, Penn., $1.87
F.o.b. Mill: Monessen, Penn., $1.93

A.P.M.* Joliet, Illinois, Donora, Penn., $2.79
F.o.b. Mill: Monessen, Penn., $2.89

* At Producing Mill.

‡ Delivered. *b* 1-5 tons, add 35¢. Less than 1 ton, add 50¢. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivery in free delivery zone. *g* 10,000 to 39,999 lbs. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial and Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq.yd. *n* 5-10 tons. *o* 5 to 20 tons base. *p* Del. of 500 sq. yd. or more. *q* Std. ribbed, 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra — 1 in., 1¼ in., 1½ in., 10¢; 2 in., 15¢; 2½ in., 25¢; 3 in., 50¢; 3½ in., 80¢; 4 in., $1.00. *v* 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $0.0093 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales. *hh* 10,000-19,999 lbs. *ii* 400-999 lbs. *kk* ½" ribbed. *ll* 5 to 8 tons, f.o.b. city. *mm* 2% off for cash. *nn* 1-5 tons. *oo* 10 tons to C.L. *pp* 2000-9999 lbs. *A.* Amer. struct'l shapes. *B.* Canadian shapes.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

Mill	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in. *a*	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered ASTMC 14-41 12 in.	24 in.
Atlanta	$99.00	$0.43	$0.67	$3.39*gg*	$7.00*gg*	$114.00	$140.00	$0.45	$2.00
Baltimore	109.00	.539	1.0395	4.23*A*	11.275*A*	178.20	274.80	.90	2.45
Birmingham	93.00	.42	.75	2.99	....	210.00‡	375.00‡	1.25*m*	2.75*m*
Boston	113.00	.532*unz*	1.08*unv*	4.41*unv*	11.685*unv*	187.80*v*	289.20*v*	1.55*mq*	3.80*mq*
Chicago	107.00	.65	1.25	5.10	13.50	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	.567*y*	1.093*y*	4.32*y*	11.17*y*	164.40	254.10	.75*m*	2.80*m*
Cleveland	108.00	.462*r*	.89*r*	3.69*r*	10.045*r*	158.00*m*	245.65*m*	.75*m*	2.95*m*
Dallas	107.00	.436	.822	3.234*b*	9.17*b*	.....	.....	.49	1.60
Denver	115.00	.43*dd*	.74*dd*	3.18*dd*	.....	.....	.....	.74*m*	2.50*m*
Detroit	108.00	.70	1.35	5.35	14.40	240.00*m*	360.00*m*	.80	3.20
Kansas City	106.00	.515	.92	3.64	....	216.70*f*	.....	.70	3.00*g*
Los Angeles	122.00	.54*f*	1.07*f*	5.24*f*	13.06*f*	228.20*f*	348.90*f*	.85	2.40*f*
Minneapolis*	112.00	.66*mo*	1.20*mo*	4.85*mo*	....	.....	.....	1.36*h*	3.87*h*
Montreal	100.00	.85*z*	1.50*z*	5.25*z*	....	.....	.....	106.50*kaa*	282.70*kaa*
New Orleans	101.50	.498	.905	5.03	....	229.70*bb*	402.00*bb*	.65	2.29
New York	111.00	.62	1.19	4.73	12.40	.....	.....	1.15	2.50
Philadelphia	110.00	.65	1.25	4.95*A*	12.65*A*	300.00‡	350.00‡	1.55*h*	3.75*h*
Pittsburgh	109.00	.406*m*	.772*m*	2.85*m*	7.652*m*	147.00	230.00	1.05*h*	2.50*h*
St. Louis	103.00	.51	.93	3.65	8.58	150.00‡	350.00‡ *V*	1.20*il*	2.70*kl*
San Francisco	122.00	.61*d*	*h* 1.20*d*	5.03*d*	12.57*d*	240.00*dl*	400.00*dl*	.95	3.20
Seattle	124.00	.51*b*	.91*b*	....	....	150.00*v*	.....	.88*ee*	2.65*ee*

‡ Delivered. *a* Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually $1 per ton less. *b* Extra strength ASTM C200-44T. *c* 4-in., $90. *d* SS361-A. *e* 30-in. *f* F.o.b. factory. *g* Culvert pipe. Reinforced, ASTM C76-41. *h* Reinforced, ASTM C75-41. *i* Reinforced, ASTM C76-37. *j* Centrispun. *k* Per 100 ft. *l* F.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum). *p* Less than 5 tons, per price per ft. *t* Within switching limits. *u* ASTM C13-40. *v* C.L. f.o.b. origin freight allowed. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60-1941 specifications used. *aa* No. standard specifications in Can. *bb* Freight allowed to destination in city. *cc* Truck loads; f.o.b. plant, Newton. *dd* LCL, delivered, f.o.b. truck. *ee* 1% off for cash. *ff* 21 . *gg* Extra strength ASTM C-200-50. A Standard strength. * 6" to 8", 1.60 per ft.; 10" to 12", 2.40 per ft.; 15", 3.60 per ft.; 18", 4.80 per ft.; 24", 7.20 per ft.; 30", 10.00 per ft.; 36", 13.00 per ft.

*WROUGHT STEEL PIPE

Mill	(Full standard weight) Butt Weld‡ Black %	Butt Weld‡ Galv. %	Lap Weld‡ Black %	Lap Weld‡ Galv. %	Butt Weld, 2½ & 3 in. Black %	Butt Weld, 2½ & 3 in. Galv. %	a 3½ to 4 in.	b Continuous
Lorain, Ohio	43.5	14.5*a*	43.5	17.0*c*	43.5	21.0		
Aliquippa, Pa.	43.5	14.5*a*	43.5	14.5*a*	43.5	21.0		
Sparrows Pt., Md.	41.5	16.5*a*	43.5	16.5*a*	43.5	23.0		
Benwood, W. Va.	43.5	17.0*c*	43.5	17.0*c*	43.5	23.0		
Youngstown, O.	43.5	14.5*a*	43.5	14.5*a*	43.5	23.0		
Indiana Harbor, Ind.	42.5	16.5*a*	43.5	16.5*a*	43.5	23.0		
Sharon, Pa.	43.5	16.5*a*	43.5	16.5*a*	43.5	21.0		
Wheatland, Pa.	43.5	17.0*c*	43.5	17.0*c*	43.5	21.5		
Etna, Pa.	43.5	17.0*c*	43.5	17.0*c*	43.5	23.0		
Fontana, Calif.	32.0*b*	24.0*ab*	32.0*b*	10.0*ab*	32.0*b*	18.5*b*		

† Threaded and coupled. *c* 5 and 6 in.

‡ Delivered. *a* Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually $1 per ton less. *b* Extra strength ASTM C 200-44T. *c* 4-in., $90. *d* SS361-A. *e* 30-in. *f* F.o.b. factory. *g* Culvert pipe. Reinforced, ASTM C76-41. *h* Reinforced, ASTM C75-41. *i* Reinforced, ASTM C76-37. *j* Centrispun. *k* Per 100 ft. *l* F.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum). *p* Less than 5 tons, per price per ft. *t* Within switching limits. *u* ASTM C13-40. *v* C.L. f.o.b. origin freight allowed. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60-1941 specifications used. *aa* No. standard specifications in Can. *bb* Freight allowed to destination in city. *cc* Truck loads; f.o.b. plant, Newton. *dd* LCL, delivered, f.o.b. truck. *ee* 1% off for cash. *ff* 21 . *gg* Extra strength ASTM C-200-50. A Standard strength. * 6" to 8", 1.60 per ft.; 10" to 12", 2.40 per ft.; 15", 3.60 per ft.; 18", 4.80 per ft.; 24", 7.20 per ft.; 30", 10.00 per ft.; 36", 13.00 per ft.

*WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base prices apply on $200 per net ton. List prices per ft.: *Butt Weld:* ¼ in., 5½¢; ⅜ in., 6¢; ½ in., 6¢; ¾ in., 8½¢; 1 in., 11½¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09. 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. black, + 20.0, galv + 50.0; 1¼ in. black, + 20.0, galv. + 49.5, 1½ in. black, + 14.0 galv. + 46.0; *Lap Weld* — 2½ in. to 3½ in. black + 20.5, galv. + 48.5; 4½ in to 8 in. black + 17.5, galv. + 44.0. Freight rates to destination to be added to name delivered price.

(Continued on page 95)

You'll get prints *on time* despite today's greater demands if Bruning COPYFLEX machines replace or supplement inadequate whiteprinters.

The COPYFLEX process gives you fast service on prints . . . as many as you need.

And what prints you get from a COPYFLEX machine! They're clean, sharp, accurate reproductions delivered flat and ready-to-use. What's more, only with COPYFLEX can you make prints on so many different kinds of materials. For Bruning makes the widest range of sensitized papers, cloths and films. Get the full facts on COPYFLEX . . . mail the coupon!

Only *COPYFLEX* gives you all these advantages!

- No fumes or exhausts because it uses no vapor developer
- Top-quality prints ready for immediate use
- No installation—simply make an electrical connection
- Wider range of sensitized and coated papers, cloths and films
- Anyone can operate a COPYFLEX machine with a simple 5-minute explanation

COPYFLEX "93" is virtually automatic, handles cut sheets or roll stock up to 42 in. wide.

BRUNING

Specialists in copying since 1897

CHARLES BRUNING CO., INC.

Dept. F32 Teterboro, New Jersey

☐ Send me free booklet on COPYFLEX process and equipment.

☐ Show me COPYFLEX in action (no obligation).

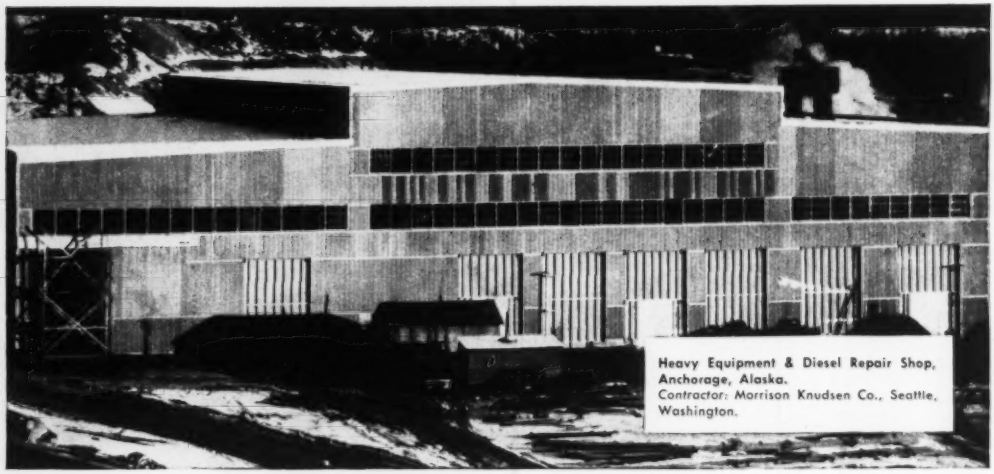
Name..... Title.....

Company.....

Street.....

City..... Zone..... State.....

Products that save building time, labor, materials, money



Heavy Equipment & Diesel Repair Shop, Anchorage, Alaska.
Contractor: Morrison Knudsen Co., Seattle, Washington.

Alaskan Building Completely Enclosed in 30 Days...in near zero weather!

This Diesel Repair Shop at Anchorage, Alaska, is 230 by 320 feet.

It went from skeleton to finished building in just 30 days (and the weather was nearly zero).

One small crew did the work.

This is no special case, it happens every day. And you can duplicate the feat, or build even faster, *if* you think in terms of Fenestra* "C" Metal Building Panel construction before you even put pencil to paper.

Design with these things in mind:

A 12′ long Fenestra "C" Panel gives you 16 sq. ft. of wall area, yet weighs only 6½ lbs. per sq. ft. So you won't need such a heavy foundation or nearly so much hard-to-get structural steel.

Each Fenestra "C" Panel is a 3″ thick prefabricated unit packed with glass fibre insulation. Your Panel Wall will prevent heat loss more efficiently than a 16″ thick masonry wall. And look at the extra floor area you get with this more compact wall construction.

Fenestra "C" Panels have double tongue and groove joints . . . you get perfect joints and weathering.

Remember—you can build by areas instead of by inches.

You can build in any kind of weather (even zero weather).

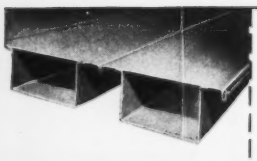
You can build faster, better and with less structural steel.

Call your Fenestra Representative for complete information. Or write Detroit Steel Products Company, Dept. ER-3, 2277 East Grand Blvd., Detroit 11, Michigan.

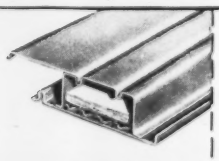
*Trademark

Fenestra METAL BUILDING PANELS

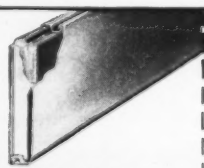
...engineered to cut the waste out of building



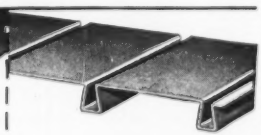
"D" Panels for floors, roofs, ceilings. Standard width 16". Depth 1½" to 7½".



Acoustical "AD" Panels for ceiling-silencer-roof. Width 16". Depth up to 7½".



"C" Insulated Wall Panels. Standard width 16". The depth is 3".



Holorib Roof Deck. 18" wide—lengths up to 24'. Surface can be plain or acoustical.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2 Fir; small timbers and timbers are No. 1. Lengths up to 20 ft.

(*Prices in italics*)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 R/A	6x12 R/A	12x12 R/A
Atlanta	† **$73.00**	**$76.00**	**$67.00**	**$69.00**	**$73.00**	**$76.00**	**$75.00**	.....	.....
Baltimore	* **98.00**	**100.00**	**80.00**	**85.00**	**85.00**	**90.00**	**114.00**	.....	.....
	104.50g	*104.50g*	*104.50g*	*104.50g*	*104.50g*	*104.50g*	*115.50*	*$125.50*	*$125.50*
Birmingham	† **83.00**	**83.00**	**70.00**	**80.00**	**83.00**	**85.00**	**95.00**		
	85.00	*85.00*	*77.00*	*86.00*	*86.00*	*79.00*	*85.00*	*85.00*	*85.00*
Boston	**101.00a**	**107.00a**	**101.00a**	**99.00a**	**107.00g**	**113.00a**			
	* *97.00*	*97.00*	*102.00*	*107.00*	*107.00*	*107.00*	*125.00*	*125.00*	*125.00*
Chicago	** **100.00**	**105.00**	**92.00**	**100.00**	**101.102**	**105.106**	**105.00**		
	108.00	*104.105*	*104.105*	*108.00*	*108.110*	*108.110*	*110.00*	*110.00*	*110.00*
Cincinnati	* **96.00**	**98.00**	**84.00**	**92.00**	**96.00**	**98.00**	**118.00**		
	109.00	*109.00*	*111.00*	*111.00*	*111.00*	*111.00*	*126.00*	*121.00*	*121.00*
Cleveland	** **96.00**	**98.00**	**80.00**	**95.00**	**97.00**	**105.00**			
	.....	.....	*98.00*	*104.00*	*107.00*	*110.00*	*135.00*	*135.00*	*135.00*
Dallas	†† **78.00**	**80.00**	**69.00**	**58.00**	**59.00**	**59.00**	**98.00**		
Denver	* *Not in stock*		*131.00*	*139.00*	*148.00*	*147.00*	*187.00*	*145.00*	*145.00*
Detroit	‡ **106.00**	**110.00**	**100.00**	**108.00**	**112.00**	**113.00**			
	89.75	*106.75*	*105.75*	*106.50*	*105.50*	*104.00*	*120.00*	*120.00*	*120.00*
Kansas City	* **120.00**	**120.00**	**120.00**	**120.00**	**120.00**	**120.00**			
	120.00	*120.00*	*120.00*	*120.00*	*120.00*	*120.00*	*145.00*	*155.00*	*155.00*
Los Angeles	‡ *94.00*	*94.00*	*94.00*	*94.00*	*94.00*	*94.00*	*112.00*	*122.00*	*112.00*
Minneapolis	‡ *150.00*	*150.00*	*135.00*	*155.00*	*155.00*	*155.00*	*150.00*	*150.00*	*150.00*
Montreal	*a$85.00*	*90.00*	*85.00*	*85.00*	*90.00*	*100.00*	.....	.....	.....
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*176.00*	*175.00*	*175.00*	*170.00*
New Orleans	† **100.00**	**100.00**	**92.00**	**85.00**	**90.00**	**94.00**	**118.00**		
	† *100.00*	*102.00*	*108.25*	*101.25*	*101.25*	*99.50*	*122.00*	*122.50*	*117.00*
New York	* **105/110**	**110/115**	**100.105**	**107.[m] 112.[m]**	**112.[m] 117.[m]**	**117.[m] 122.[m]**	**150.160**		
			Range from $115.00 to $120.00				*155/160*	*145/150*	*145/150*
New York	** **93.00**	**95.00**	**80.00**	**92.00**	**96.00**	**99.00**	**130.00**		
	97.00	*97.00*	*106.00*	*106.00*	*106.00*	*106.00*	*116.00*	*125.00*	*125.00*
Philadelphia			**Range from $114.00 to $127.00**				**114.127**		
			Range from $125.00 to $150.00				*150/140*	*150.00*	*150.00*
Pittsburgh	†		**Range from $90.00 to $95.00**			**100.110**	**100/110**		
			Range from $100.00 to $110.00			*115/120*	*110/120*	*145/155*	*145/155*
St. Louis	*fc***118.00e**	**122.00e**	**104.00**	**110.117**	**110.123**	**122.136**	.....	.....	.....
			118.00e	*125.00e*	*125.00e*	*127.00e*	*160.00e*	*160.00*	*160.00*
San Francisco	*A‡ 66/68*	*68.00*	*76.00*	*75.00*	*75.00*	*78.00*	*75.00*	*82.00*	*82.00*
Seattle	† *77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*

	2x12 R/A	12x12 R/A
LONG LEAF Y. P. Merchantable grade up to 20 ft.	**$148.00**	**$148.00**
	115.00	**150.00**
	.....	.....
	.....	.....
	134.00	**134.00**
	.....	.....
	125.00	**125.00**
	.....	.....
	.....	.....
	108.00	**98.00**
	.....	.....
	.....	.....
	.....	.....
	.....	.....
	148.00	**140.00**
	210/240	**210/240**
	.....	.....
	.....	.....
	200/210	**200/210**
	100/110	**115/125**
	.....	.....
	.....	.....
	.....	.....

PLYWOOD Rail freight increment (See note for base price)

	¼"	¾"
	$22.32	$27.24
	22.86	27.90
	21.78	26.58
	.....	.....
	22.86	27.90
	18.72	22.80
	.....	.....
	.....	.....
	22.20	27.12
	18.72	22.80
	13.92	16.98
	21.78	26.58
	.....	.....
	16.56	20.16
	13.38a*b*	16.26a*b*
	16.56	20.16
	.....	.....
	.....	.....
	18.72	22.80
	.....	.....
	.....	.....
	22.86	27.90
	.....	.....
	.....	.....
	22.86	27.90
	.....	.....
	.....	.....
	22.56	27.48
	.....	.....
	18.72	22.80
	.....	.....
	10.08a	12.30a

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard *c* Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* **Tax exempt.** *c* 5M lots. *d* 8-12 ft. lengths. *e* 8-16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common *l* 8-10 ft. lengths.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail $12.00 by truck to yard with surfaced stock $2.00 to $3.00 less.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 3-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¼", $176.00; on ¾", $201.00. Exterior concrete form ¾" $196.00, ¾" $223.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Freight rate increase of 6¢ per cwt., not included in these figures.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950a, Single or Double Thickness, A quality	WINDOW GLASS: B quality	EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2675
Baltimore	70-10%	78-10%	.2675
Birmingham	83%	83%	.2150
Boston	79-10%	79-10%	.2675
Chicago	78%	78%	.2675
Cincinnati	78%	78%	.2675
Cleveland	78-10-10%*f*	78-10-10*f*	.3075
Dallas	75%	75%	.2750
Denver	81-5%	81-5%	.2725
Detroit	78-10-10%	78-10-10%	.2675
Kansas City	80-10%	80-10%	.2725
Los Angeles	75%	80%	.25
Minneapolis	78-10%	78-10%	.2725
Montreal	40-5%*bc*	40-10-5	.20-90*bi*
New Orleans	78%	77%	.2725
New York	82-10%	82-10%	.3975*g*
Philadelphia	76%	78%	.2675
Pittsburgh	82%	82%	.24
St. Louis	80-10%	80-10%	.2725
San Francisco	70%	76%	.2675
Seattle	75%	78%	.24

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass: *a* Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *f* Disc from Oct. 1950.

Explosives: * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $22.65. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.215	$0.2475	$0.2675
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.22 - .2275	.2525- .26	.2725- .28
Rocky Mtn. States	.22 - .2325	.2525- .26	.2725- .285
Pacific N. W. States	.2175- .23	.25 - .2625	.27 - .2825
Pacific S. W. States	.215 - .2225	.2475- .25	.2675- .2425

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail: Pine*	By Rail: Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.43	.....
12-in. — 2-ft. from butt	6-in.	50 to 59-ft.	.46	.....
12-in. — 2-ft. from butt	6-in.	60 to 69-ft.	.50	.....
12-in. — 2-ft. from butt	6-in.	90 to 100-ft.	.....	.....
13-in. — 3-ft. from butt	5-in.	91 to 100-ft.	.....	.....
14-in. — 2-ft. from butt	6-in.	50 to 69-ft.	.50/.60	.....
14-in. — 2-ft. from butt	6-in.	70 to 79-ft.	.70/.75	.85
14-in. — 2-ft. from butt	5-in.	80 to 85-ft.	.75/.85	.86
14-in. — 2-ft. from butt	5-in.	85 to 89-ft.	.....	.92
14-in. — 2-ft. from butt	5-in.	90 to 100-ft.	.....	.94

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak	.....	.....	.....	.....
	Pine	.....	.....	.....	.....
New York	S. L. Sap Pine	$2.10	$3.90	$3.00	$5.00
	Mixed Oak	2.65	4.20	3.25	5.50
Birmingham	Hardwood	2.40	3.88*a*	2.85	4.58*a*
Chicago	Red Oak	.....	4.00*a*	.....	5.00*a*
Los Angeles	Douglas Fir	.....	.....	.....	.....
	Redwood	.....	.....	.....	.....
Philadelphia	Red Oak	2.60	3.95	3.45	5.10
St. Louis	White Oak	2.94		3.63	
	Red Oak	2.84	3.49*a*	3.52	4.51*a*
	Sap Pine or Cypress	3.31*a*		4.27	
San Francisco	Douglas Fir	2.20*e*	3.2*ef*	2.92*bf*	4.30*eaf*
Montreal	Birch or Maple	*h*	*h*	*h*	*h*

Tr. — Treated; Untr. — Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

Making Ends Meet

is a joint problem that Flintseal answers best...*

...and most economically!

It's easier to keep within the limits of your pavement budget *when the joints are positively sealed.*

Count on it that your concrete will stand up better . . . become a good, lasting investment . . . when durable Flintseal is in the joints.

One application of this high quality hot-poured joint-sealing compound lasts for years. Flintseal holds its bond *firmly* . . . through extremes of hot and cold weather, against water and foreign matter.

You'll find that this rubber asphalt thermoplastic compound remains extensible and compressible through all cycles of concrete expansion and contraction. Therefore, in the long run, it's more economical than older types . . . appreciably reducing maintenance bills.

* Reg. U. S. Pat. Off.

Flintseal JFR, a special jet fuel resistant joint sealer, is also available for airfields.

Complete technical data and specification procedures are available on request. Write today for new descriptive folder.

THE FLINTKOTE COMPANY, *Industrial Products Division, 30 Rockefeller Plaza, New York 20, N. Y.*
Atlanta • Boston • Chicago Heights • Detroit • Los Angeles • New Orleans • Washington
In Toronto, Ontario: The Flintkote Company of Canada, Ltd.
In London, England: Industrial Asphalts Company, Ltd.

FLINTKOTE
Products for Industry

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M., in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.50	$247.50	$327.00	$342.00	$381.50	$27.78	$27.78	$19.00	$17.50	$17.50
Baltimore	183.00	195.00	366.00	415.00	541.00	618.00	36.00*k*	41.00*k*	30.00	21.00	.....
Birmingham	118.00*n*	128.00*p*	256.00*p*	283.00*p*	.....	.....	27.50*ff*	28.50*ii*	26.37	17.10	.....
Boston	196.00*t*	209.00*t*	392.00*t*	383.25*t*	.....	.....	34.50*jj*	36.50*jj*	30.00*t*	28.00*t*	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	21.00	23.00	30.80	26.00	.....
Cincinnati	185.00*j*	195.00*j*	340.00*jdd*	.....	.....	.....	34.50*jj*	46.00*jj*	26.37*l*	24.62*jj*	.....
Cleveland	172.00**	185.00**	.....	.....	.....	.....	32.00*ll*	32.00*ll*	25.50	23.50	31.00*ee*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	37.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00*ll*	40.00*ll*	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	127.75	136.25	255.55	.....	317.25	362.60	34.00*ee*	33.30*ee*	32.00	30.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	26.00	26.00	30.50	24.50	27.00
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	21.00*ll*	.....	34.00	34.00	35.00
Minneapolis	171.50*p*	192.50*p*	386.00*p*	192.50*ncp*	.....	.....	32.00*ee*	36.00	37.00*bbe*	28.00*bbe*	38.00*bbds*
Montreal	150.60*ag*	162.50*ca*	300.00*ca*	.....	.....	.....	31.00	41.50	34.80	32.50	24.60*a*
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	20.00	20.00
New York	138.70*hh*	147.90*hh*	203.40*eh*	221.90*hn*	.....	.....	38.50	.....	28.00	32.00	.....
Philadelphia	126.30	134.80	252.60	302.74	361.35	455.74	29.00	32.00	36.00	21.50	.....
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	32.00	42.00*hy*	25.00	23.00	2.97*ss*
St. Louis	138.00*ee*	158.50*ee*	313.00*ee*	.....	351.00*ee*	.....	40.00*ll*	36.25*s*	.85*aaa*	.65*aaa*	1.10*aaapee*
San Francisco	156.85*a**	177.10*a**	245.30*ddd**	.....	.....	.....	37.00	.....	26.60	26.60	2.65*m*
Seattle	175.00*ee*	190.00*ee*	.....	190.00*eew*	.....	.....	39.00*s*	40.00*s*	37.50*ahh*	1.50*ii*	3.90*mhh*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 114. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. *ii* Per 60 lb. sack, no incr., ton price no longer quoted. ** Only 1 plant producing quotes on warehouse delivery, previous quotes were * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$21.80	$32.925	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	21.55	32.55	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	21.80	32.925	3.90	3.40	.....	2.80	2.75	2.75	.....	40.50*ee*
Boston	21.55	32.55	.....	.....	.....	2.67*ag*	2.56*ag*	2.56*ag*	.47*g*	42.00*g*
Chicago	21.55	32.55	.....	.....	.....	2.73‡*u*	3.04‡*o*	3.04‡*o*	38.00‡*bbe*	43.00‡
Cincinnati	21.55	32.55	.....	.....	.....	2.30	2.30	2.30	.42*y*	42.36
Cleveland	21.55	32.55	2.94*pqqA*	3.37*qqB*	2.80*qqC*	2.30‡*q*	2.30‡*o*	2.30‡*o*	.36‡*y*	40.00‡*kk*
Dallas	21.80	33.30	.....	4.05	.....	3.50*q*	3.75*o*	4.35*o*	.36	46.00
Denver	22.05	34.05	3.07	5.15	2.87	3.25*o*	2.40*o*	2.40*o*	.43*ff*	42.00
Detroit	21.55	32.55	2.35	3.40	2.50	2.30*o*	2.30*f*	2.30	.51	40.00
Kansas City	21.55	32.67	.....	2.71*gs*	2.65	2.50	2.50*o*	2.50*o*	.313	48.00
Los Angeles	21.55	32.80	3.30	4.50	4.20	2.97	2.01*c*	*l*	.44	*l*
Minneapolis	21.55	28.00–32.67	.....	.....	.....	2.30*kkdd*	2.30*kkdd*	2.30*kkdd*	.34*kkdd*	37.00‡
Montreal	.....	20.70	4.00	4.90	5.20	3.80*q*	3.85*f*	3.00*kk*	3.15*kk*	
New York	21.55	32.55	3.45*y*	.....	.....	2.30	2.30*o*	2.30*o*	.34*z*	37.00
Philadelphia	21.55	32.55	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	21.55	32.55	2.65	2.65	3.15	2.40	2.81*o*	2.81*o*	.39	42.00
St. Louis	21.55	32.55	.....	.....	.....	2.30	2.30*h*	2.30*h*	.36*y*	38.00
San Francisco	21.55	32.80	2.40	.....	3.40	2.95	4.00*aa*	.....	.49	.....
Seattle	21.55	33.05	2.51*m*	2.67*m*	.....	3.58*mqee*	3.05*kmee*	.....	.50*mee*	52.00*jmee*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard Roxbury. *h* Per roll. 65 lb. *i* Not carload lot prices Minneapolis and vicinity. *j* Asphalt patch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *o* Per 66-lb. roll. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal drums. *gg* F.o.b. factory. *hh* Incl. freight. *A.* TTP 27. *B.* TTA 408A. *C.* TTP 31A.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Brick-layers	Car-penters	Struct. Iron Workers	Hoisting Engineers	Plas-terers	Electrical Workers	Steam-fitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2 75	$2 20	$2 335	$2 25	$2 75	$2 60	$2 75	$1 05	$1 05
Baltimore	3 20*b*	2 58	2 90	2 85 3 00	2 75	2 75	2 65	1 49	1 49
Birmingham	2 75	2 125	2 50	2 06	2 42	2 60	2 65	1 10	1 20
Boston	2 888	2 475	2 75	2 80	2 67	2 80	2 695	1 815	1 815
Chicago	3 250	2 70	2 80	2 65	2 95*n*	2 91*n*	2 75	2 05*m*	2 05*m*
Cincinnati	2 90	2 475	2 665	1 825 2 85	2 75	2 70	2 64	1 65	1 65
Cleveland	3 00	2 525*d*	2 825	2 75	2 97	2 825	2 825	2 10	2 10
Dallas	3 4375*t*	2 3375	2 50	2 475	3 4375	2 625	2 6125	1 20	1 35
Denver	3 00	2 35	2 35	2 48	3 10	2 65	2 65	1 575	1 575
Detroit	2 85	2 75	2 95*m*	2 80	3 065*f*	2 85	2 75*m*	2 00	2 00
Kansas City	3 50	2 365	2 53	2 365 2 61	3 625	2 66	2 75	1 73	1 73
Los Angeles	3 00	2 35	2 50	2 30	3 125	2 625	2 625	1 75	1 75
Minneapolis	2 90	2 40	2 55	2 35	2 75	2 71*n*	2 55	1 67	1 67
New Orleans	3 00	2 06	2 45	2 325	2 375	2 50	2 45	1 10	1 10
New York	3 548*bc*	3 096*a*	3 348*a*	3 348*a*	3 596*ar*	3 597*as*	3 286*bg*	1 90	1 90
Philadelphia	3 46*a*	2 65	3 14*y*	3 00 3 15*	3 075*k*	3 28 3 53*u*	2 85*r*	1 60	1 90
Pittsburgh	3 25	2 75	2 75	2 825	2 75	2 75	2 80	1 70	1 70
St. Louis	3 09*c*	2 75*h*	2 75	2 80	3 00	2 887*c*	2 625	1 77	1 77
San Francisco	3 256	2 45	2 70	2 41	3 125	2 75	2 75	1 70	1 70
Seattle	3 30	2 51	2 75	2 50	3 00	2 65	2 75	2 11	2 00
Montreal*	1 75	1 25	1 63	1 45	1 75	1 65	1 70	1 15	1 15

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 4% for electricans plus 1% N.P. * Cost of living bonus now included in basic wage. *d* Includes 5¢ per hr. tool replacement. † Plus $5.00 daily bonus. *h* $2.45 houses and housing + 5¢ vacation fund. *i* Incl. 31% welfare. *j* Incl. 9¢ hr. welfare. *k* Incl. 7½ ¢ hr. welfare fund. *l* Incl. 4% vacation fund. *m* Incl. 5¢ hr. welfare ins. fund. *n* Incl. 6¢ hr. welfare fund. *o* Inc., 3% welfare fund. *p* Incl. 5% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20¢ pension fund. *s* Incl. 5% welfare and pension fund and 4 % vacation fund. *u* Incl. 1% welfare fund. *v* Incl. 10¢ welfare fund.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Jan.'52	Feb.'52
Common Wages—Building (8 hr. day)	av. per hr.	83*	83*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	93*	93*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2 25*	2 25*
Bricklayers (8 hr. day)	av. per hr.	2 25*	2 25*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.25*	1.25*
Struct. Steel Shapes 3"-15" x 12 meters	per metric ton	1,111 01	1111 01
Reinf. Steel, Curr. Rods			
½" x 11 meters	per ton	1,261 51	1261 51
⅝" x 11 meters	per ton	1,251 11	1251 13
¾" x 11 meters	per ton	1,240 75	1240 75
⅞" x 11 meters	per ton	1,230 37	1230 37
1" x 11 meters	per ton	1,230 37	1230 37
1" x 11 meters	per ton	1,230 37	1230 37
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	45 00	45 00
Rose Gravel	per tr. load	41 00	41 00
Cement, Std. Port. (Tolteca)	per ton	155 00	155 00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	800 00	800 00
1st. Class Pine	per M ft.	1200 00	1200 00
2nd Class Pine	per M ft.	980 00	980 00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers) $2.770. **ENR Common Average: $1.664.**

SAVINGS
FLOW FROM
SPEED-LAY
PIPE SYSTEM
EVERYTHING for a
COMPLETE PORTABLE
PIPE SYSTEM

- FACTORY PACKAGED
- PIPE COUPLINGS
- FITTINGS
- VALVES
- ACCESSORIES

LIGHTWEIGHT
SAVES LABOR
FAST, SIMPLE

Immediate Installation
by one unskilled man. 2½ to 12½ o.d. black or galvanized. Larger sizes can be furnished. Ready to lay —without delay.

DELIVERED
READY for
INSTALLATION

ALBERT
PIPE SUPPLY CO., INC.
Berry at North 13th St.
Brooklyn 11, N. Y.
Phone EVergreen 7-8100

SEND COUPON NOW!
ALBERT PIPE SUPPLY CO., INC.
Berry & N. 13th St., Brooklyn 11, N. Y.
Please send free booklet describing your Speed-Lay Pipe System and services:
NAME
FIRM NAME
ADDRESS
CITY STATE

Better commercial building outlook predicted by Creedon for late 1952

J. Roland Carr
Associate Editor

The construction industry can look forward to a much improved building program during the last half of this year. This was the message brought to the Associated General Contractors' convention in Detroit last week by Frank R. Creedon, assistant administrator for facilities and construction, of the National Production Authority.

Pointing to the fact that NPA recently approved materials for 645 new construction projects—chiefly municipal and religious buildings—Creedon declared that preparatory work on them can be started now, with assurance that materials will be available after the second quarter of this year.

• **$800-million backlog**—There is an $800-million backlog of commercial construction now awaiting authorization of materials by NPA, said Creedon. This backlog involves about 1,100 projects, requiring a total of 70,000 tons of steel.

The industrial construction picture also promises to improve, declared Creedon. Although NPA will grant no new starts in industrial construction in the second quarter of this year, some will be allowed during the third quarter and a "substantial number" in the fourth quarter. He also advised that the amount of steel which can be self-authorized for commercial construction—without NPA approval—will be increased from the present two tons to five tons. Two of the five tons may be in structural shapes, except that no wide-flanged beams will be allowed.

• **Better outlook for highways**—Claimant agencies are still requesting 150% of the existing supply of steel for the third quarter of this year. Percentagewise Mr. Creedon said the Bureau of Public Roads' requests for the third quarter total three times as much tonnage as for the second quarter of this year. Creedon said that highways are a good contender for more steel since they do not require other scarce materials.

• **Construction equipment situation**—There is enough contractor-owned equipment for the Army and Air Force construction programs in this country, but construction materials continue to be the knottiest problems, said Lt. Gen. Lewis A. Pick, Army Chief of Engineers.

The $3-billion Army and Air Force construction program is well under way, said Gen. Pick, and it encircles the globe. The Corps of Engineers is handling $820 million for Army construction and $1.65 billion for the Air Force.

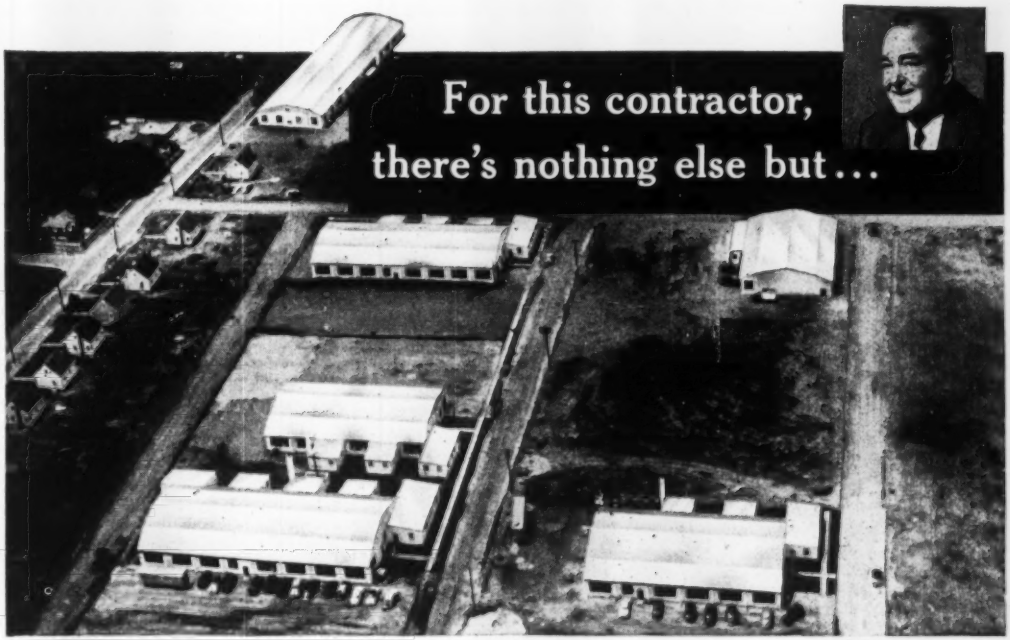
Most of the program in the United States will be at existing stations and bases. This construction—planned to be started during the next 6 or 8 months—is divided thus: Middle West, $700 million; Eastern Seaboard, $290 million; South, $290 million; Far West, $275 million, and New England, $90 million. The work will be launched in increments so that the construction market will not be flooded with work in one period and be without it later. Construction of troop housing in the United States will cost $360 million; warehousing, $210 million; and new hospitals in posts, camps and stations, $40 million. Army construction will be about 80% permanent types and 20% temporary. Two major items of Air Force construction in this country are $80 million for hangars and $110 million for runway and similar paving work at existing airfields, Gen. Pick said.

• **Economy Navy's watchword**—Economy will be the Navy's watchword in stretching its appropriations for vitally-needed shore structures, declared Rear Admiral Joseph F. Jelley, Chief of the Bureau of Yards and Docks. Only four of our 1,555 current continental construction contracts are cost-plus-fixed-fee.

Work now under way in this country for the bureau, declared Admiral Jelley, totals $354 million, much of which is under contracts of less than $1 million. Of the bureau's $800-million public-works program, $636 million will be for projects in the continental United States. Of this amount, $559 million will be for construction contracts.

• **Much government control**—In his annual report, H. E. Foreman, man-

(Continued on page 100)



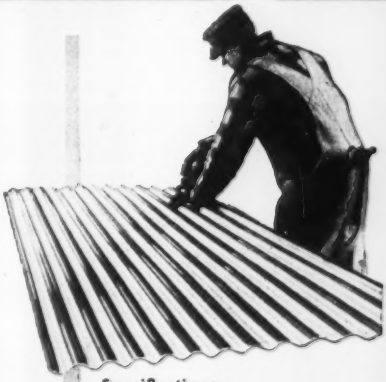
For this contractor, there's nothing else but...

George Mole has been a contractor and industrial building owner in the Amityville, Long Island, area for 25 years. He discovered Reynolds *Lifetime* Aluminum Industrial Corrugated in 1949. He put his first 15,000 square feet on the Amityville School... then used it on the Copiague and Lindenhurst schools and on 13 other industrial and commercial buildings. Let him tell you why:

"First of all economy. Initial cost is low. The insulation value means still more economy, as well as more comfort inside. Low maintenance and long life extend economy through the years. And lighter weight (56 pounds per square) can save on construction.

"My Reynolds .032 roofs have set a standard in this area that I am proud of. I have more buildings planned, and if I can't get this roofing I won't build—that's how sold on Aluminum I am."

Call Reynolds for literature and technical assistance... offices in principal cities. Check your classified phone book for our listing under "Building Materials" or write to Reynolds Metals Company, Building Products Division, 2009 South Ninth Street, Louisville, Kentucky.



Specifications:

Thickness .032"
Corrugations 7/8" deep, 2-2/3" crown to crown
Uniform load support (roof) 80 p.s.f. on 4' purlin spacing
Roofing width 35", coverage 32"
Lengths 5', 6', 7', 8', 9', 10', 11', 12'

Military demands for aluminum reduce supply, but Reynolds is rapidly expanding aluminum capacity. Rated orders receive priority handling.

REYNOLDS *Lifetime* ALUMINUM INDUSTRIAL CORRUGATED

"The Kate Smith Evening Hour" on Television, Wednesdays—Tallulah Bankhead in "The Big Show" on Radio, Sundays—NBC NETWORKS

SAVINGS
FLOW FROM
SPEED-LAY
PIPE SYSTEM
EVERYTHING for a
COMPLETE PORTABLE
PIPE SYSTEM

- FACTORY PACKAGED
- PIPE COUPLINGS
- FITTINGS
- VALVES
- ACCESSORIES

LIGHTWEIGHT
SAVES LABOR
FAST, SIMPLE

Immediate Installation
by one unskilled man. 2½ to 12½ o.d. black or galvanized. Larger sizes can be furnished. Ready to lay —without delay.

DELIVERED
READY for
INSTALLATION

ALBERT
PIPE SUPPLY CO., INC.
Berry at North 13th St.
Brooklyn 11, N. Y.
Phone EVergreen 7-8100

SEND COUPON NOW!

ALBERT PIPE SUPPLY CO., INC.
Berry & N. 13th St., Brooklyn 11, N. Y.

Please send free booklet describing your Speed-Lay Pipe System and services:

NAME .....
FIRM NAME .....
ADDRESS .....
CITY ..... STATE .....

Better commercial building outlook predicted by Creedon for late 1952

J. Roland Carr
Associate Editor

The construction industry can look forward to a much improved building program during the last half of this year. This was the message brought to the Associated General Contractors' convention in Detroit last week by Frank R. Creedon, assistant administrator for facilities and construction, of the National Production Authority.

Pointing to the fact that NPA recently approved materials for 645 new construction projects—chiefly municipal and religious buildings—Creedon declared that preparatory work on them can be started now, with assurance that materials will be available after the second quarter of this year.

• **$800-million backlog**—There is an $800-million backlog of commercial construction now awaiting authorization of materials by NPA, said Creedon. This backlog involves about 1,100 projects, requiring a total of 70,000 tons of steel.

The industrial construction picture also promises to improve, declared Creedon. Although NPA will grant no new starts in industrial construction in the second quarter of this year, some will be allowed during the third quarter and a "substantial number" in the fourth quarter. He also advised that the amount of steel which can be self-authorized for commercial construction—without NPA approval—will be increased from the present two tons to five tons. Two of the five tons may be in structural shapes, except that no wide-flanged beams will be allowed.

• **Better outlook for highways**—Claimant agencies are still requesting 150% of the existing supply of steel for the third quarter of this year. Percentagewise Mr. Creedon said the Bureau of Public Roads' requests for the third quarter total three times as much tonnage as for the second quarter of this year. Creedon said that highways are a good contender for more steel since they do not require other scarce materials.

• **Construction equipment situation**—There is enough contractor-owned equipment for the Army and Air Force construction programs in this country, but construction materials continue to be the knottiest problems, said Lt. Gen. Lewis A. Pick, Army Chief of Engineers.

The $3-billion Army and Air Force construction program is well under way, said Gen. Pick, and it encircles the globe. The Corps of Engineers is handling $820 million for Army construction and $1.65 billion for the Air Force.

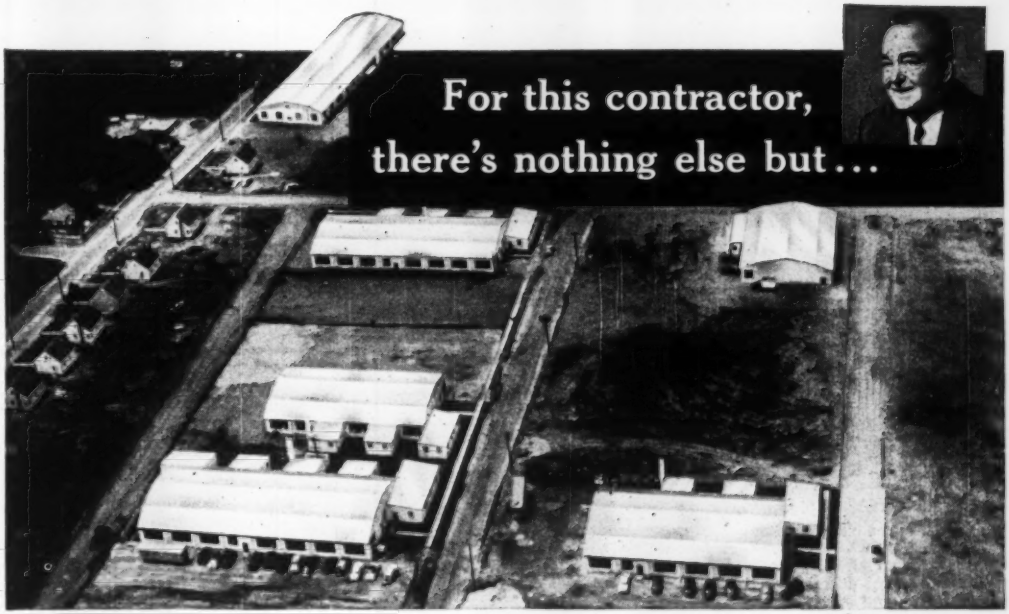
Most of the program in the United States will be at existing stations and bases. This construction—planned to be started during the next 6 or 8 months—is divided thus: Middle West, $700 million; Eastern Seaboard, $290 million; South, $290 million; Far West, $275 million, and New England, $90 million. The work will be launched in increments so that the construction market will not be flooded with work in one period and be without it later. Construction of troop housing in the United States will cost $360 million; warehousing, $210 million; and new hospitals in posts, camps and stations, $40 million. Army construction will be about 80% permanent types and 20% temporary. Two major items of Air Force construction in this country are $80 million for hangars and $110 million for runway and similar paving work at existing airfields, Gen. Pick said.

• **Economy Navy's watchword**—Economy will be the Navy's watchword in stretching its appropriations for vitally-needed shore structures, declared Rear Admiral Joseph F. Jelley, Chief of the Bureau of Yards and Docks. Only four of our 1,555 current continental construction contracts are cost-plus-fixed-fee.

Work now under way in this country for the bureau, declared Admiral Jelley, totals $354 million, much of which is under contracts of less than $1 million. Of the bureau's $800-million public-works program, $636 million will be for projects in the continental United States. Of this amount, $559 million will be for construction contracts.

• **Much government control**—In his annual report, H. E. Foreman, man-

(*Continued on page 100*)



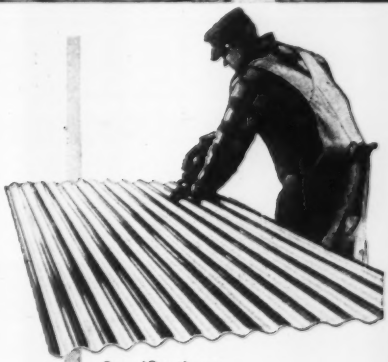
For this contractor, there's nothing else but...

George Mole has been a contractor and industrial building owner in the Amityville, Long Island, area for 25 years. He discovered Reynolds *Lifetime* Aluminum Industrial Corrugated in 1949. He put his first 15,000 square feet on the Amityville School... then used it on the Copiague and Lindenhurst schools and on 13 other industrial and commercial buildings. Let him tell you why:

"First of all economy. Initial cost is low. The insulation value means still more economy, as well as more comfort inside. Low maintenance and long life extend economy through the years. And lighter weight (56 pounds per square) can save on construction.

"My Reynolds .032 roofs have set a standard in this area that I am proud of. I have more buildings planned, and if I can't get this roofing I won't build—that's how sold on Aluminum I am."

Call Reynolds for literature and technical assistance... offices in principal cities. Check your classified phone book for our listing under "Building Materials" or write to Reynolds Metals Company, Building Products Division, 2009 South Ninth Street, Louisville, Kentucky.



Specifications:
Thickness .032"
Corrugations 7/8" deep, 2-2/3" crown to crown
Uniform load support (roof) 80 p.s.f. on 4' purlin spacing
Roofing width 35", coverage 32"
Lengths 5', 6', 7', 8', 9', 10', 11', 12'

Military demands for aluminum reduce supply, but Reynolds is rapidly expanding aluminum capacity. Rated orders receive priority handling.

REYNOLDS *Lifetime* ALUMINUM INDUSTRIAL CORRUGATED

"The Kate Smith Evening Hour" on Television, Wednesdays—Tallulah Bankhead in "The Big Show" on Radio, Sundays—NBC NETWORKS

Medium sized Sauerman Slackline Cableway, installed in 1928, has dug and moved many hundred thousand cubic yards of gravel from this pit to the screening plant with minimum expense for labor, power and repairs. Still good as new after 23 years' service, the machine continues to maintain its rated capacity.

SAUERMAN

SLACKLINE CABLEWAY EXCAVATORS

The Sauerman Slackline Cableway reaches far out—across a deep pit, water, sludge or bog—to pick up a load at the finger-tip command of one man sitting in a comfortable operating station overlooking the site of the work. It avoids the risk of sending men or machines onto the surface of soft areas.

This efficient slackline cableway does the work of two or more machines—quickly digs, conveys, elevates and dumps in a non-stop cycle. The thoroughly proved dumping arrangement has never been successfully duplicated by any other device. Digging speed is low, to provide extra power. Then the cableway hoist shifts into high speed for conveying.

Sauerman Slackline bucket in picture is dumping 5-ton load of material onto an elevated grid. Bucket makes 38 round trips an hour on 400-ft. span, digging from storage basin and delivering to grid.

Maintenance costs are exceptionally low since only the most expendable parts of the Sauerman Slackline Cableway ever come in contact with the material handled. Also, there is only one machine to service which further reduces operating costs. Gasoline, electric or Diesel power consumption is surprisingly low. Installation is simple

So if you want to move more yardage per hour on deep excavation, at less cost per yard—it will pay you to investigate all the many exclusive advantages of Sauerman Slackline Cableway equipment.

Write today for new, illustrated catalog C.

Rope Haulage Equipment Specialists Since 1909

SAUERMAN BROS., Inc.

532 S. CLINTON ST. CHICAGO 7, ILLINOIS

"Gunite" ..... the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY

"GUNITE" CONTRACTORS

GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.

MANUFACTURERS OF THE "CEMENT GUN"

Meetings . . .

aging director of AGC, said: "Actions taken by NPA and other mobilization agencies have brought construction activity almost completely under government control. Mobilization needs have thrown the construction volume out of balance. Construction activity has tended to become spotty, with large amounts of work in some areas and a sharp falling off in others. As the heavy pressure for defense needs eases, there will be less need for confining civilian construction within the restrictions of the controlled materials plan. At that time a priorities system could be used to assure materials for defense projects. Foreman urged more active advance planning of construction.

Arthur S. Horner, of the A. S. Horner Construction Co., Denver, Colo., was elected president of AGC. He succeeds Glen W. Maxon, of the Maxon Construction Co., Dayton, Ohio.

Engineers list ways to improve concrete

Frederick S. Merritt
Associate Editor

Why is some concrete "bad" and other concrete "good"? That is what the American Concrete Institute sought to find out at its 48th annual meeting, held in Cincinnati last week.

A large portion of the ACI meeting was devoted to panel discussions in which the causes of concrete deterioration were examined and good construction practices were summarized. Other technical sessions dealt with prestressed concrete and ultimate-load design.

A. T. Goldbeck, engineering director, National Crushed Stone Association, Washington, D. C. was elected president, and C. H. Scholer, head of the department of applied mechanics, Kansas State College, vice-president.

• **New secretary treasurer**—At a special luncheon the society honored Harvey Whipple, its secretary since 1919 and treasurer since 1921. Under his administration, the ACI had grown from a membership of only 232 to more than 5,600. Mr. Whipple was named editorial consultant, and Fred F. Van Atta, assistant secretary since 1946, was appointed acting secretary-treasurer.

Before his affiliation with the ACI, Mr. Whipple had been managing editor of CONCRETE. Mr. Van Atta is a 1934 civil engineering graduate of Michigan State College. He has worked on surveys with the Coast &

Geodetic Survey, foundation investigations for Kentucky Dam for the Tennessee Valley Authority and hydraulic model studies for the Los Angeles District of the Corps of Engineers. He served as a major in the corps during World War II.

• **Awards announced**—for notable service to the concrete industry, Raymond E. Davis, director of the Engineering Materials Laboratory, University of California, was presented the Henry C. Turner Medal. Douglas E. Parsons, chief, Building Technology Division National Bureau of Standards, was the choice for the Alfred E. Lindau Award, because of his outstanding contributions to reinforced concrete design.

Otto Safir, of Safir Engineering Consultants, Vancouver, B. C., received the Construction Practice Award for his resourcefulness in translating design into completed structure. W. J. McCoy and A. G. Caldwell, of the Lehigh Portland Cement Co., received the Wason Medal for noteworthy research, and W. H. Price, head, Engineering Laboratories, U. S. Bureau of Reclamation, Denver, the Wason Medal for the most meritorious paper published in the ACI Proceedings.

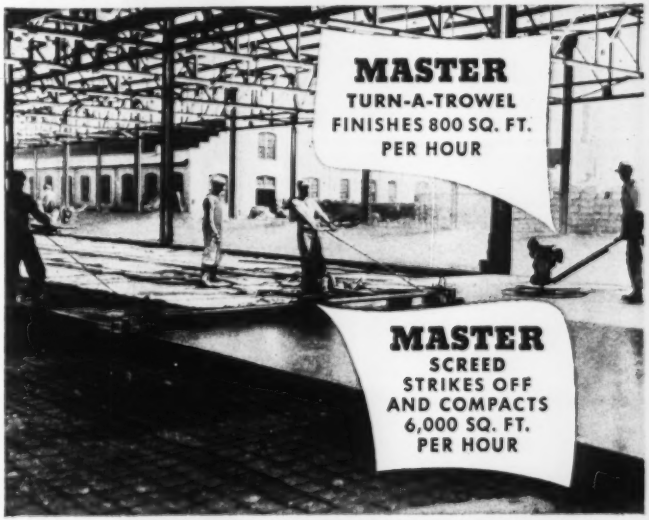
• **What makes concrete bad**—The technical sessions were mostly a summary of the best information available on good concrete construction. Hardly any new techniques were described. In a panel discussion on durability, for example, C. B. Porter, engineer for the Chesapeake & Ohio Ry. Richmond, Va., reported that in a survey of concrete railroad structures he had found these causes of deterioration: (1) Too much mixing water in the concrete; (2) Deleterious aggregates that caused popouts; (3) Excessive seepage of water from embankments; (4) Volume change due to shrinkage.

In a session on curing, A. G. Timms, of the Bureau of Public Roads, called attention to the poor concrete resulting from improper curing of the material. And in a session on concrete materials and properties, Edward J. Callan of the Waterways Experiment Station, Jackson, Miss., as well as Delmar Bloem, Stanton Walker and W. G. Mullen, of the National Sand and Gravel Association, Washington, D. C., reported that thermal expansion of aggregates could cause deterioration. Concrete having high coefficients of expansion, the latter found, were less resistant to temperature changes than concrete with low coefficients. No relationship was found in their

(*Continued on next page*)

Super Fast

CONCRETE FLOOR FINISHING



ONLY MASTER OFFERS YOU QUALITY EQUIPMENT BUILT FOR THE JOB!

Only MASTER TURN-A-TROWEL provides quick change from wide compacting trowel to trowel finish . . . covers more area with more paste brought to surface for faster final finish. Broader trowels and heavier weight eliminate impacted air and give density to surface to eliminate shrinkage and cracking. Write for Catalog No. 939.

MASTER Universal Concrete Vibrator maintains a vibration speed over 9,500 R.P.M. in concrete.

MASTER VIBRATORY CONCRETE FINISHING SCREED strikes off and compacts without need for additional vibration. MASTER Standard Screed for flat surfaces, also MASTER Crown Screeds for circular or parabolic surfaces . . . all sizes. Write for Catalog No. 942.

MASTER VIBRATOR COMPANY • DAYTON 1, OHIO

MASTER

BETTER PRODUCTS FOR BIGGER PROFITS

Master Portable Generator Plants ½ KW to 100 KW

Master Vibratory Concrete Finishing Screed

Master Power-Blow Electric Hammer and Spade

Master Space Heaters

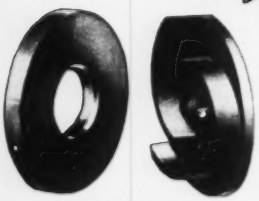
Master Gas or Electric Concrete Vibrators

for the . . . Complete
QUALITY LINE
depend on
CARVER
PUMPS

Model KN1½L
4000 G.P.H.

A COMPLETE LINE

Carver Self-Priming Pumps available in all sizes from 4,000 to 240,000 G.P.H. Gas, Diesel, Motor or Belt Drive. Also Diaphragm Pumps up to 6,000 G.P.H. Ask for Bulletin No. 110. Carver Pump Co., 1400 Hershey Ave., Muscatine, Iowa.



REPLACEABLE LINERS AND IMPELLERS

Sturdy, wear-resistant replaceable liners and impellers are standard equipment in all Carver Contractor Pumps. When wear eventually occurs you don't replace the entire costly casing, as in ordinary pumps. Simply remove and install a new liner, a new impeller if necessary, and new pump efficiency is restored at nominal cost.

Another Carver Quality Feature!

A QUALITY LINE

Quality is our strong forte — Every Carver Contractor Pump is designed and manufactured with one specific purpose in mind — to provide you with rugged dependable equipment, loaded with reserve power and stamina, to handle the toughest construction jobs. Nothing fragile about these pumps; no skimping on materials; no underpowering; no compromise of quality. Throughout their many years Carver pumps have earned an enviable reputation in the field for dependable, efficient and long-life service. We shall continue to build pumps that will perpetuate this reputation.

Specify Carver Contractor Pumps — your best buy for better performance.

CARVER PUMPS

Meetings . . .

tests, however, between resistance of concrete to temperature change and thermal coefficients of aggregates and mortars.

• **How to get good concrete**—Frank H. Jackson, of the Bureau of Public Roads, said durable concrete pavements can be built today with present equipment and recommended: (1) Use of cement that meets specifications of the American Society for Testing Materials; (2) Use only the very best aggregates; (3) Design mixes by the water-cement ratio trial method to obtain the specified structural strength with 5 of 6% air entrainment; (4) See that all equipment is in good condition; replace worn-out mixer blades; (5) Provide a sufficient number of qualified inspectors.

For durable concrete in hydraulic structures, Lewis H. Tuthill, of the Bureau of Reclamation, recommended use of vibration, air entrainment, Type V cement, and low-alkali cement or pozzolans. He also expressed a belief that it is essential to have good drainage, well-made construction and contraction joints, good alignment where there is fast-flowing water, and no temperature differentials in mass concrete.

Recommended practices for curing of pavements, structural concrete, mass concrete and canal linings were outlined by a panel.

Use of pozzolans to improve concrete quality was brought out by C. H. Scholer and G. M. Smith, of Kansas State College. They said that a 20 to 30% replacement of cement by fly-ash effectively inhibited cement-aggregate reaction in concrete.

Connecticut engineers set minimum salaries

A schedule of minimum salaries for engineers was adopted by the Connecticut Society of Professional Engineers at a meeting held Feb. 23 in Hartford. The schedule will be recommended to the state for application to state employees. There are two subprofessional grades applicable to "engineers-in-training" and seven for professional grades as given below:

	minimum annual salary
Grade 1	$3,400
Grade 2	$4,200
Professional Engineer	
Grade 3	$5,200
Grade 4	$6,000
Grade 5	$7,000
Grade 6	$8,200
Grade 7	$9,600
Grade 8	$11,200
Grade 9	$16,000

FINANCE

Mortgages gain for industrial building

The financing of a $45-million light industry development in the marginal area near Los Angeles' airport at Inglewood, (known as the Hayden-Lee Tract) through what amounts to a mortgage financing transaction, last week called attention to the rapid growth of a comparatively new means of obtaining funds for construction projects.

According to George W. Warnecke, head of a New York City investment firm which arranged the $4.5 million finance deal, this method of financing industrial work is attracting an ever-growing pool of investment capital—a capital that he estimated might run as high as $10 to $15 billion available this year.

Represented in this tremendous pool are life insurance companies, pension and fiduciary funds, private foundations, institutional funds, mental savings funds and private investors, placing their money through the medium of such organizations as Warnecke's firm and others (stock and bond houses, private banks etc.)

The growth in the mortgage-type (the investors call it direct placement, or direct negotiation) business has been spectacular. Warnecke's firm—pre-Korea—did a "normal" business of about $20-$30 million a year in this type of financing.

But in 1950, the firm's business in this field jumped to $75 million. In 1951, the total was up to $120 million.

• **How it works**—The workings of the transactions are basically as simple (except for the amounts involved) as obtaining a mortgage on a home.

Manufacturing company, for example, wants funds to finance construction of a new addition to its plant, and for repairs and other purposes in its existing plant. It approaches its banking contacts—or is advised to consult some such an organization as Warnecke by its engineering consultants. Regardless of the route, the transaction comes to the attention of the investment house.

Careful investigation of X company's business, its management, its sales records, its property follow. If al checks out, the investment house arranges what amounts to a mortgage, secured by the company's buildings and real estate holdings, to be paid off, with interest and amortization, over a period of years.

• **Reasons**—Reasons for the growth of mortgage financing for industrial construction aren't hard to find.

Of almost equal importance are mounting tax rates, which have cut into net profits of industrial concerns; and the fact that expansion programs of the past few years, added to increasing costs, have eaten away retained earnings and reserves usually held for such purposes.

Additionally, public reluctance to accept new bond or stock flotations to finance new work (also part of a growing tightness in money markets) has dried up a good part of this source of money. A fourth factor is the reluctance of many manufacturing concerns to carry the added weight of extra stock issues or bonded indebtedness over long periods.

A much simpler way of handling the problem of getting new money, thus, is the "mortgage" on the company's properties, to be paid off out of earnings, at interest rates (4-5%) which have not gotten too far out of hand.

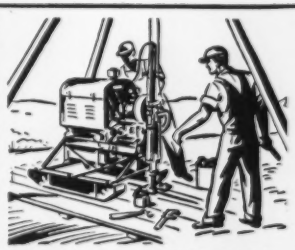
• **Type of business is key**—Despite the drying up of other sources, Warnecke says, there is plenty of money available for investment for expansion of what he calls basic industries—steel, machine tools, food processing.

"The type of business, as well as the management record and condition of the property," he said, "is a basic point with investors. Like any banker handling mortgages, we have to be as sure as we can be that the borrower himself is sound, and that his business has a good prospect of remaining in operation and repaying the principal of loan over the period of years fixed.

"I would venture to say this:

"There is a drying up of general money markets because of increasing taxes on private and corporate incomes. Thus, more and more investment funds go to this type of mortgage investment. But a sound business with sound management, should have no difficulty in obtaining funds to finance its construction work now or in the future."

Too, there is the fact that a bond or stock issue is subject to taxation, both on the issuing firm, and on the holder of the certificate. "Mortgages" however, are deductible from income taxes, so far as interest charges are concerned.



CONTRACTORS
for
DIAMOND CORE DRILLING
DRY SAMPLE SOIL BORINGS
FOUNDATION TESTING
PRESSURE GROUTING, ETC.
anywhere in the world

Sixty years of successful experience, backed by superior equipment and ample financial resources, constitute your best possible assurance of satisfactory service. Estimates submitted promptly on request. Manufacturers, also, of Diamond Core Drilling Machines and complete accessory equipment.

SPRAGUE & HENWOOD, Inc.
Dept. E, SCRANTON 2, PA.
New York - Philadelphia - Pittsburgh

Tough and Strong
LASTS
EXTRA LONG

KONIK metal beats the rigors of a tough culvert life—it resists rust and fights element corrosion. The Continental open hearth steel plus copper, nickel and chromium does it. These sheets are made especially for culvert use because they stand more rough abuse. Continental Steel Corporation, Kokomo, Indiana.

ASK TO SEE THE KONIK CULVERT METAL WARRANTY
Continental culvert distributors are glad to show the KONIK warranty . . . and the certified analysis that assures the longer culvert life of KONIK metal.

CONTINENTAL STEEL CORPORATION
FENCE • BARBED WIRE • POSTS • NAILS • ETC.

How Stake Driving Progress was Stepped-Up 300% on the New Jersey Turnpike

The Job: installing 8,500 Stimsonite delineators to facilitate night travel on the new super-highway 118-mile New Jersey Turnpike. American Gas Accumulator Co., Elizabeth, New Jersey, under a contract to handle the safety installation for the New Jersey Turnpike Commission, originally planned to drive the stakes from the bed of a truck with a hand-held pneumatic hammer. But this proved too slow a procedure, so a faster method had to be found to meet an accelerated schedule.

Solution: a SCHRAMM Pneumatractor with a Pneumadriver (cantilever bar carrying a wagon drill air shell fitted with a paving breaker as a hammer). A rack on the front of the machine held a supply of stakes, a feeler gauge gave correct distance from pavement edge, a 150-ft. chain dragging behind showed stake spacing, and match marks on hammer and guide indicated driving depth.

Immediate result: Stake driving progress was upped 300%! A small crew bettered 35 units per hour—a total of 375 per day.

You, too, will find SCHRAMM Pneumatractor provides many savings and advantages. For full details write today for your copy of Catalog 5140.

SCHRAMM AIR COMPRESSORS

The Compressor People

WEST CHESTER PENNSYLVANIA

Home builders demand representation

The men who build the nation's homes are vocally bitter about two government labor policies which they feel ought to be changed to help them.

Firstly, they want representation on the Construction Industry Stabilization Commission. At present they have no member on this wage-rate setting body.

Secondly, they want Regulation No. 1, of the CISC, modified in accordance with building industry practice. They contend that present rules prohibit historically-sanctioned incentive pay.

• **A place in the sun**—Voicing their discontent through the National Association of Home Builders, the light construction men are seeking a place on the CISC employer group for one of their own industry. If a permanent place is not available, they will accept an alternate position.

Behind the complaint is the feeling that the commission is loaded with heavy construction men who are not familiar with the problems of the light construction industry.

The CISC answers the complaint of the home builders by saying that there has always been an alternate membership available to the home builders, but that they have never named anyone to fill it.

• **Modification of Reg. 1**—William J. Tobin, Jr., director of the labor department of the NAHB, says that Reg. 1 of the CISC, which prohibits the payment of higher than established area rates for wages, works a hardship on the home building industry.

Tobin said that bonus plans, piecework contracts, and higher pay to superior mechanics have been common in the industry. He claims that builders have met with refusal on the part of highly-skilled workers to work for the "negotiated contract scale". In several places, he says, strike threats and mass walk-outs have occurred.

• **Guilty with an explanation**—To these charges the CISC pleads guilty, but with an explanation. They say that they have been trying to work out a plan to keep incentive wage rates in the picture. It is up to the home builders to apply for approval to continue the practices so that commission members can work it out.

The CISC also says that from complaints they have been receiving they find that home builders who are below the union rate want to come up to it, but those who are above the union rate want to keep the advantage.

CHAIRMAN RICHARD A. HENNING kept 3-day exploratory conference going at rapid pace, but unfinished business had to be carried over to the next meeting.

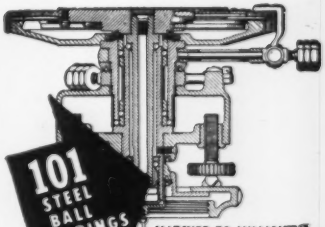
Bargaining groups form national assoc.

The formation of a national association of engineer collective-bargaining groups moved one step nearer to accomplishment last week at a three-day meeting in Chicago. There were 21 independent collective bargaining groups represented at the exploratory conference; representing a total membership of 14,906 engineers out of a total eligible list of 28,597.

Chief purpose of the meeting was the adoption of a constitution which was first proposed at an initial exploratory conference held in Newark, N. J., last August. Also to determine a basis of membership eligibility in the association. The over-all objective of the conference was to set up the framework for the consolidation of more than 30 independent engineer bargaining groups into one national organization.

Most of the articles of the proposed constitution were discussed and revised. A third meeting, however, will be held in Chicago May 30-June 1, to complete the study of the constitu-

(Continued on next page)



MATCHED TO MILLIONTHS assure the lasting accuracy and free movement of the

BRUNSON BALL-BEARING BASE*

USED ON ALL BRUNSON SURVEYING INSTRUMENTS

Permanently lubricated and factory sealed against dust, the Brunson Ball-Bearing Base allows a total eccentricity of not more than + or — ¼ second of angular error. To obtain this accuracy, it is necessary for us to engineer and produce in our own plant these Bearings and spindles—each stabilized to the accuracy of precision gauge blocks. Because these ball bearings are pre-loaded and operate under tension, they remove all grease from the point of contact. This assures greater accuracy than any other type of bearing which must allow for grease or oil film. *Write for details.* *Patented.

LASTING BRUNSON ACCURACY

BRUNSON INSTRUMENT COMPANY, INC.
1405 Walnut St. • Kansas City 6, Mo.

OWNER • ARCHITECT
ENGINEER • CONTRACTOR

PLASTIMENT*-CONCRETE SATISFIES ALL FOUR BECAUSE

- MIXES BETTER
- HANDLES EASIER
- PLACES FASTER
- STAYS DURABLE

*PLASTIMENT is the chemically Retarding Densifier especially developed for concrete work which requires your guarantee. Retards set, densifies mix to provide controlled properties far superior to reference concrete. Designed for use with all types of aggregates and all methods of mixing and placing. PLASTIMENT-Concrete's ease of handling and superior results find ready on-the-job acceptance in every phase of construction. For full details, write or call.

APPROVED: PLASTIMENT and other Sika Products have been tested and approved on Federal, State and Municipal projects, and are approved under Building Codes of principal cities.

SIKA
CHEMICAL CORPORATION
35 GREGORY AVE • PASSAIC, N. J.
TELEPHONE PRescott 7-8020

on the job LONGER

ALSO CARBIDE ROK-BITS • ROLLOW DRILL AND INTRA-SET STEELS

Cutting edges that stay sharp longer . . . ruggedness that resists breakage on the toughest jobs . . . are typical characteristics that identify Brunner & Lay tools every time. For tools that stay on the job longer, have your dealer show you the complete Brunner & Lay quality tool line for construction work of every kind.

Ask your dealer for a demonstration or write for complete information.

affiliated plants and warehouses
2425 East 37th Street
Los Angeles 11, Calif.
•
150 Leslie Street
Dallas, Texas

Brunner & Lay, Inc.

general offices and main plant

9300 KING STREET • FRANKLIN PARK, ILLINOIS

the reliable, leading source of supply since 1882

New Transits and Levels by Experts

Each Buff is dependable, accurate and economical.

Send for catalog #329.

Headquarters for Repairs

Every make of instrument, renewed by Skilled Workmen.

Our Shops are located at Jamaica Plain, Boston, Mass.

Buff & Buff Mfg. Company

HENRY A. BUFF, *President.*

High Grade Hardwood

SURVEYOR STAKES

Stained Yellow Bound with Steel Strapping

	Per 100	In 1000 Lots Per 100
2x2—12"	$ 7.15	$ 6.50
—15"	8.80	8.00
—18"	9.60	8.70
—24"	11.50	10.45
—36"	16.50	15.05

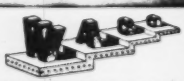
GRADE STAKES

1x2—12"	5.60	5.10
—15"	5.75	5.20
—18"	5.80	5.25
—24"	6.90	6.25
—36"	9.70	8.80

Prices net F.O.B. Cumberland, Md.

BUCHANAN LUMBER CO.

CUMBERLAND, MD.

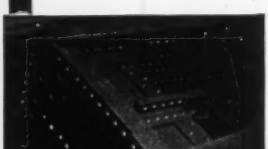


ALUMINUM FABRICATION

WACO's modern facilities are available for all types of aluminum fabrication, completely equipped for production of aluminum structural components and sub-assemblies. Your inquiries are invited.

WASHINGTON ALUMINUM CO., Inc.

BALTIMORE 29 MARYLAND



Typical example of heavy plate and angle riveted assembly fabricated in WACO shop

Labor . . .

tion; following which it will be submitted to the groups for ratification.

One of the most controversial issues was membership eligibility. Decision was to limit membership strictly to (1) Those organizations that have been certified by the National Labor Relations Board as bargaining groups, and (2) those federal, state and city groups of civil service engineers who are precluded from NLRB certification.

The 21 groups represented include many branches of engineering, as well as some architects and scientists. Two west coast groups have a substantial membership of civil engineers. They are the National Professional Association of Engineers, Architects and Scientists, with a civil engineer membership of about 500; and the Engineers and Architects Association, with about 400 civils.

The national organization would have as its main objectives: promoting the social and economic welfare of professional employees and improving employer-employee relations . . . elevating the status of professional employees and providing an ethical representation without affiliation with non-professional labor organizations . . furthering the unity of the technological professions . . . assisting in the formation of collective bargaining units . . . and making the general public aware of the real contribution made to society by professional men.

Labor briefs . . .

• **Picketing ban rehearing asked**—The legal battle between Brown & Root, Inc., and 56 Texas unions (ENR Feb. 21, p. 57) concerning an injunction against picketing went into another round. Both sides applied for a rehearing of the case. The unions claim that the appeals court was wrong in 23 instances, and the construction firm claims the court was wrong in 1 important instance.

• **Non-union boss cannot work**—The Massachusetts Supreme Court ruled that painting contractor, William Thorne, cannot work with his men as long as he does not have a union card. The court would not give Thorne, formerly financial secretary of the union local, the right to compel the union to restore him to membership.

• **Council boycotts talks with union**—Wage talks are at a standstill for about 5,000 members of the AFL Laborers Local 74, Washington, D. C., because negotiators for the construction council are boycotting the local's president, Henry Thomas, an admitted ex-communist.

New contract policy spelled out

The Defense Department this week came up with some answers to the question, "What contractors' costs will the government pay when it terminates a contract?"

Just published as Section VIII of the Armed Services Procurement Regulation, the policy covers termination of government contracts like the partial cancellation of the John McShain Company's $9-million job at Camp Ritchie, Maryland (ENR Feb. 28, p. 25).

• **Allowable costs listed**—What the new regulation does is to spell out the process of terminating a contract for procurement officers. But, contractors have a direct interest because the regulation specifies which costs will be allowed and which will not.

The new policy may get a good test in the near future. With the military budget cut, a number of military contracts will soon be cancelled.

This is particularly true for the Air Force whose expansion plans for next year were trimmed considerably.

The result is that contracting officers will now have to terminate many of the contracts let last year when bigger budgets were expected.

• **End preferential treatment**—Actually, the latest policy is a refinement and tightening of the joint termination regulation that grew out of the Armed Services Procurement Act of 1947. Principal change was the elimination of the almost preferential treatment formerly accorded to subcontractors. Both primes and subs will have to prove costs with equal effort.

Section 402 (B) spells out specific examples of cost that may be paid by the government under a termination of fixed-price contracts. It lists 31 cost categories which may be included. For example:

- Bonds and insurance.
- Common claims of subcontractors.
- Depreciation of buildings, equipment, and machinery for the life of the contract up to the time it was terminated by the government.
- Engineering and development and special equipment.
- Experimental, research and development expenses.
- Interest on borrowed funds.
- Loss of value of machinery bought by the contractor solely for the performance of the contract, provided that: It has no other value to the contractor; that title is transferred to the government; and, that the amount paid be in direct proportion to the amount of useful value lost.
- Recruiting costs, including "Help Wanted" ads, plus training costs.
- Salaries and wages, plus materials and supplies.
- Special leases; rental under a bona-fide lease clearly shown to have been necessary in the performance of the contract.

• **These aren't allowed**—Section 402 (C) spells out 14 cost categories that will not be assumed by the government. Examples of costs that will not be paid by the government: Bad debts, contingency fees, entertainment, legal and related expenses incurred in appealing a directed settlement, losses on other contracts, and materials purchased in excess of total contract requirements.

• **How it's settled**—If the contractor and the contracting officer fail to reach an agreement, the contracting officer can then direct that a settlement be made according to his own estimates.

If the contractor disagrees, he has the right to appeal under the disputes clause in the contract. But, if the contractor fails to submit a settlement proposal within the time limit set in the individual contract, or does not request an extension of time in which to file a proposal, he loses the right of appeal.

For cost-plus type contracts, the costs which the government will pay are generally detailed in the original contract. The area of negotiation would be the amount of fixed fee or profit to be paid.

The termination of any government contract is subject to review, by the service or by the General Accounting Office, in cases where fraud is suspected.

Where settlement involves more than $25,000, the contracting officer has to submit his findings to a review board. If it involves more than $500,000, review comes from a high level board through the office in charge of all procurement activity for that service. Example: Termination of a contract for marine railways or a drydock would have to be approved by the Bureau of Yards and Docks of the Navy Department.

HOW TO HANDLE
WET JOBS

#3 of a series

SEA WATER
INTAKE LINE

Jacksonville Beach, Fla.

Contractor:

B. B. McCormick & Sons

265 FT LAID IN TWO 6-HR
PERIODS BETWEEN TIDES

THIS ENTIRE AREA was under water at high tide—yet wellpoints solved the problem. Using a Griffin Wellpoint system (see photo), contractor dewatered and dug the 265 ft trench, and laid twin transite lines . . . completing all these operations within two 6-hour periods between tides.

• Have *you* a "water worry" coming up? No matter what type job . . . sewer . . . power house . . . dam . . . remember this: The faster you lower water, the more you lower costs. For "quick dry" . . . specify . . . Griffin—wellpoint pioneer and problem-solver through nearly two decades.

GRIFFIN
WELLPOINT CORP.
881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Jacksonville, Fla.
In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.
ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† Maine—PIPE LINE CLEARING—B.A. 3/11—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., clearing for Searsport-Limestone pipe line, Eng. 19-016-52-41.

† N. H., Portsmouth—CLEARING—B.A. 3/11—U. S. Eng. 857 Commonwealth Ave., Boston 15, Mass., clearing for facilities, Portsmouth Municipal Airport, Serial No. ENG 19-016-52-40. CD 12/6.

▲ Conn., Hartford—B.A. 3/18—City P. Wks. Dpt., City Hall, incinerator. $1,500,000. Metcalf & Eddy, Statler Bldg., Boston, Mass., engrs. CD 1/24, under LB.

† R. I., Quonset Point—STOREHOUSE—B.A. 3/18—Pub. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., general storehouse, U. S. Naval Air Station, NOY 29605, Spec. 31259. Plans deposit $30.

Mass., Boston—B.A. 3/20—State, Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Contr. 185, site improvs., etc. Nut Island Sewage Treatment Plant, Quincy. $300,000. Plans deposit $15 refundable. CD 1/29.

BIDS ASKED—BUILDINGS

Conn., Waterbury—HOUSING—B.A. 3/11—City Housing Auth., 24 Warner St., PHA 61- Housing, Berkeley Heights. Plans deposit $50. Extended date. CD 2/1.

Mass., Braintree—SCHOOL—B.A. 3/12—Town, R. W. Proctor, supt. Schools, 10 Tremont St., Lakeside School, Lakeside Ave., $500,000; Penniman School, 71 Cleveland Ave. Plans deposit $25, Howard L. Rich & Herman F. Tucker, 45 Newbury St., Boston, archts. CD 9/28.

Mass., Peabody—HOUSING—B.A. 3/12—City Peabody Housing Auth., City Hall, 200-2 Veterans housing, 24 units, King St. Extension, $300,000. Plans deposit $50. Smith & Sellew, 687 Boylston St., Boston, archts. CD 2/20.

▲ Mass., Pittsfield—SCHOOL—B.A. 3/12—City School Dpt., F. X. Brugger, chn. Bldg. Comn., 43 East St., North Junior High School, Springdale Park, North St. at Pontoosuh Ave. $1,125,000. Plans deposit $50. Perkins & Will, 309 W. Jackson Blvd., Chicago, Ill., archts. CD 11/26.

Mass., Worcester—PLANT—B.A. 3/15—Wyman-Gordon Corp., 105 Madison St. (selected list bidders) 1 story, 70x100 ft. pickling and electric works building. R. L. Whipple Co., 44 Portland St., engr.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Samuel Aceto & Co., 40 Preble St., Portland, Me. LB $175,373, est. $150,000. Short Sands Pump station, Bayhaven Treatment Plant, furnish, install equip. gravity sewer and force main, YORK HARBOR, ME, Trustees York Sewer Dist., Trustees Office, York Village, Me. Bids Feb. 19. CD 2/6.

▲† Todd Shipyard Corp., 1 Broadway, New York, N. Y., CA, $3,422,234, caisson for Drydock No. 2, Naval Shipyard, Spec. 33040, PORTSMOUTH, N. H. Bureau Yards & Docks, Navy Dpt., Arlington, Va. Bids Jan. 31. CD 1/24.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Allied Engineering Corp., 71 Proctor St., Roxbury, Mass. LB $510,451, substructure Hunt's Fall Bridge over Merrimack River, Lowell. Bids Feb. 19. CD 1/30.

▲ Chelsea Engineering & Constr. Co., 85 Garfield Ave., Chelsea, Mass. LB $124,000, est. $200,000, outfall sewer.

Pacella Bros., Inc., 63 Olney St., Dorchester, Mass. LB $728,927, est. $700,000. Sect. 2, intercepting sewer, pumping station and appurtenances, Ferry to Brightman Sts.; LB $533,120, est $600,000, Sect. 3, intercepting sewer, pump station, appurtenances, Brightman to Alton St., FALL RIVER, MASS. City, Sewer Dpt., City Hall, Fall River, Mass. Bids Feb 19. CD 2/13.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

Del., Wilmington—B.A. 3/11—Directors Street & Sewer Dpt., City Hall, storm drains, sewers and pumping station Contr. No. B Plans deposit $25, Whitman, Requardt & Assocs., 2304 St Paul St., Baltimore, 2, Md., engrs. CD 2/15/51.

Pa., Blairsville—B.A. 3/11—Blairsville Borough, Municipal Bldg., 50 N. Spring St., construction and complete installation 10 in. auxiliary water line. Plans deposit $10 Gilbert Associates, Inc., 412 Washington St., Reading, consult. engr.; adv. ENR 3/6.

New York—B.A. 3/12—Henry A. Cohen, dir. Bureau Contracts & Accounts, The Governoor Alfred E. Smith State Office Bldg., Albany, drainage facilities elimination of grade crossing on Owego-Candor Point 1, S.H. 5420 (North Ave.) with Erie R.R. PSC 7688-8145, Tioga Co. $41,000; adv. ENR 3/6.

† Md., Andrew Air Force Base—TRAILER PARK UTILITIES—B.A. 3/13—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., trailer park utilities, Eng. 49-080-52 58-48 CD 10/3.

N. Y., Peekskill—B.A. 3/14—City, City Hall, sewage treatment plant, sewerage sys. at Annsville Creek, $650,000. CD 3/23/51, under LB.

Pa., Phila.—STEAM DISTRIBUTION IMPRVS.—B.A. 3/19—Dpt. Property & Supplies, 319 N. Front St., Harrisburg, imprvs. steam distr. sys. at Philadelphia (Byberry) State Hospital. Plans deposit $10. Jack S. Steel Co., 1417 Sansome St., Phila. 2, Pa., archt. and engr.

BIDS ASKED—BUILDINGS

† N. J., Dover—ARSENAL IMPROVS.—B.A. About 3/11—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., fire and water sys. at Picatinny Arsenal, $298,000 Alexander Potter, 50 Church St., New York, 7, N. Y., engr. CD 11/15.

† N. J., Dover—ARSENAL IMPRVS.—B.A. 3/11—U. S. Eng., 80 Lafayette St., New York 13, N. Y., pumping station at Picatinny Arsenal, $171,000. Bid date changed. Alexander Potter, 50 Church St., New York, 7, N. Y., engr. CD 12/12.

N. Y., Long Beach—SCHOOL—B.A. 3/11—Bd. Educ., Long Beach City School Dist., Long Beach, Elementary School 5. Plans deposit $30. Reisner & Urbano, 654 Madison Ave., New York, Zone 21, archts. CD 1/30.

N. J., Bergenfield—SCHOOL—B.A. 3/12—Bd. Educ., Boro of Bergenfield, New Foster Village Elementary School, addns. to Washington and Jefferson Schools.

N. Y., Central Islip—INFIRMARY—B.A. 3/12—Bureau Contracts & Accounts, Albany, infirmary bldg. at Central Islip State Hospital. Plans deposit $30. CD 7/12/45.

N. Y., Far Rockaway—HOUSING—B.A. 3/18—New York City Housing Auth., 63 Park Row, New York, Zone 38, foundation and general constr.; heating and ventilating; electrical work; plumbing, furnishing and erecting elevators for Redfern Houses, Proj. No. NYS-55, Sect. II, incl. Bldgs. 6 and 7, in area bounded generally by Nassau County line, Jeanette Ave., Dabney Ave., Hassock St. and Redfern Ave., Queens Boro. Plans deposit $75, $25 elevators. CD 11/14, under LB.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

N. Y., Scarsdale—SCHOOL—B.A. 3/21—Bd. Educ., School Dist. 2, Scarsdale, Quaker Ridge School.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Nicholas Gallo, 1960 69 St., Brooklyn, 4, N. Y., LB, $76,016, sewers, etc. 132 Ave., 231, 232, 233, 234, 235, and 236 Sts., NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens, 24, N. Y. Bids Feb. 13. CD 2/4.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

Brooklyn Engineering Corp., 1100 E. 25 St., Baltimore, Md. LB $433,505. Grading, drainage, wid'n. resurf. 0.636 mi. U. S. Rte. 1, wid'n. 2 span, rein.-con. bridge, near Elkridge, Contr. B 629-1-145, HO-253-1-315, Baltimore and Howard Counties. Bids Feb. 18. CD 1/29.

BUILDINGS

LOW BIDS AND CONTRACTS

Bayside Hills Homes, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y., Owner Builds. $300,000. 19 HOUSES, 35 Ave. and Corporal Kennedy St. between 209 and 301 Sts. (Second Sect.), BAYSIDE, N. Y.

Harlane Homes, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. Approx. $500,000. 57 HOUSES, Chestnut Ave., south of Front St., EAST MEADOW, N. Y.

White Star Homes, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y., Owner Builds. $400,000. 40 HOUSES, Woodfield Rd. and White Star Ave., LAKEVIEW, N. Y.

Willowood Homes, Inc., c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y. Owner Builds. Approx. $300,000. 30 HOUSES in Merrick Gables Sect., MERRICK, N. Y.

▲† Rings Constr. Co., 721 Metropolitan Bldg., Minneapolis, Minn., CA, $8,923,500 additional facilities, Schenectady General Depot, SCHENECTADY, N. Y. U. S. Eng., 80 Lafayette St., New York, 13, N. Y. Bids Jan. 31. CD 1/28.

Jamaica Park Homes, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. $300,000. 32 HOUSES, 156 St. between 132 and 134 Aves., SPRINGFIELD GARDENS, N. Y.

▲ Jostan Development Corp., c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y. Owner Builds. Approx. $1,500,000. 175 HOUSES, on 35-acre site, Jericho Turnpike, WESTBURY, N. Y.

▲ Greysan Homes, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y., Owner Builds. $2,000,000. 120 HOUSES, Paul Pl. between Dogwood Ave. and Nassau Blvd., WEST HEMPSTEAD, N. Y.

Austin Co., 16112 Euclid Ave., Cleveland, O., CA. Approx. $500,000. 2 story, brick, block, rein.-con. frame OFFICE, OAKMONT, PA. Wm. Scaife Co., Ann St., Oakmont, Pa.

Cole Constr. Co., 8014 Old Harford Rd., Baltimore, Md. Owner Builds. $383,000. forty-five 2 story, bsmnt., 16x30 ft., brick semi-detached HOUSES, Greenwood Ave. south of Willowdale Ave., BALTIMORE, MD.

▲ Ralph W. Simmers Building Co., 6313 Kenwood Ave., Baltimore, Md. Owner Builds. $1,140,000. two hundred and twenty 14x2 story, bsmnt., 30x36 ft., brick veneer RESIDENCES, Hazelwood Ave., Ellingwood Ave., Hanford and Weyburn Rds., BALTIMORE, MD. CD 12/26.

▲ Mullan Contg. Corp., 3945 Greenmount Ave., Baltimore, Md. CA $1,589,540. 1 story, 300x600 ft., brick cinder block Crownsville ADMISSION BLDG., CROWNSVILLE, MD. State, Dpt. P. Imprvts. 506 Park Ave., Baltimore, Md. CD 2/12, under LB.

Lacchi Constr. Co., 2023 Maryland Ave., Baltimore, Md. LB $398,700. 1 story, 56x125 ft., brick, steel BOILER PLANT and fdn., CROWNSVILLE, MD. State, Dpt. P. Imprvts., 506 Park Ave., Baltimore 1, Md. Turpin, Wachter & Assoc., 204 N. Charles St., Baltimore, Md., engrs. CD 1/26/50.

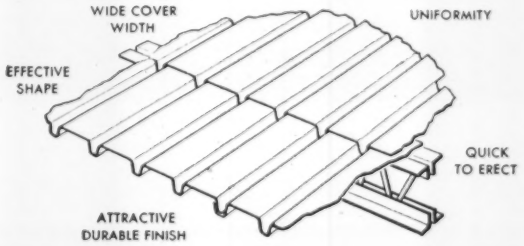
▲ Blake Constr. Co., 33 E. St. N.W., Wash., D.C., CA, $1,182,000, Bunker Hill SCHOOL addn., North and Michigan Ave. N.E. and construction of Keen SCHOOL, Riggs Rd. and Rock Creek Church Rd. N.E., WASH., D.C. Dist. Comrs., District Bldg., Wash., D. C. Municipal Architect of Washington, 300 Indiana Ave. N.W., Wash., D. C., archts. CD 7/12/44.

SOUTH

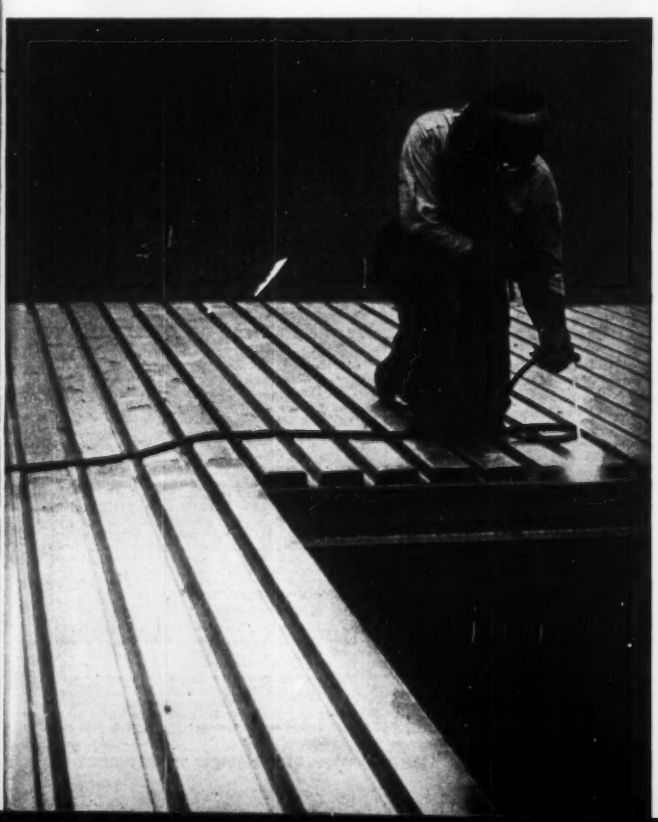
BIDS ASKED—HEAVY CONSTRUCTION

Ga., Blairsville—FACILITIES—B.A. 3/11—Bd. Regents University System of Georgia, 20 Ivy St. S.E., Atlanta, addnl. facilities at Mountain Experiment Station. Plans deposit $50. R. Kennon Perry, Mortgage Guarantee Bldg., Atlanta, Ga., archt. CD 11/27, under LB.

ALL ROOF DECK MAY LOOK ALIKE, BUT . . . knowing a few important differences can save you construction time, trouble and expense. Here's what to look for:



Granco Steel Roof Deck has longitudinal ribs 1⅛" deep spaced on 5¾" centers and is available in 18, 20, or 22 gauge. The ribs are flared at one end permitting proper nesting at end laps. Maximum sheet length is 14' 4". Positive attachment obtained by welding.



EFFECTIVE SHAPE—*Are you getting maximum sheet strength?* You are if the roof deck you select has been designed to obtain the proper relationship between rib and flat. To give maximum strength and cover per pound of steel, there must be a proper ratio between these rib (tension) and flat (compression) sections . . . the same relationship you find in Granco Roof Deck! In addition, Granco Roof Deck has the same thickness as a 2" x 4" giving maximum flexibility for architectural design.

WIDE COVER WIDTH—*Will an excessive number of side laps weaken the roof?* An expanse of frequently lapped sheets cannot possibly offer as much resistance to concentrated loads as a wide seldom-lapped surface. That's why it's best to select roof deck for maximum width with a minimum number of laps. Granco Roof Deck has a wide cover width of 28¾" . . . wider than most competitive brands. That means more strength and safety, less welding, and on large jobs, a considerable economy in laying time.

UNIFORMITY—*Are the patterns identical in every sheet?* In most brands of roof deck, yes. But, there are exceptions. When hands and human judgment are employed in the forming process, slight sheet variances must occur. These variances are greatly multiplied when sheets are placed end-to-end. Don't risk improper fits, endless re-matching of sections and slow, costly job progress. Specify GRANCO STEEL ROOF DECK because Granco sheets are rotary press formed, *machine-made* for uniformity and perfect fit. "Sheet crawl" is virtually eliminated.

ATTRACTIVE DURABLE FINISH—*How will it look in 5, 10, 15 years?* Of course, that will depend largely on weather and atmospheric conditions in your locality. But, some roof deck is better prepared to withstand age and oxidation than others. Granco Roof Deck, for example, is protected with a tough, rust-resistant alkyd resin, baked on for longer life. Granco Deck looks better, lasts longer, creates a striking panel effect for ceilings, too.

QUICK TO ERECT—*Is your roof deck the correct shape for fast placement?* It *does* make a difference! Long, narrow sheets are cumbersome to handle, difficult to lay properly. The same applies to short, wide sheets. Granco Roof Deck, on the other hand, is a convenient shape for fast placement. Each sheet covers 34 square feet. Sheet dimensions were designed with speed in mind.

Write for Free Booklet—*Gives description, physical properties, complete loading tables and suggested specifications for Granco Steel Roof Deck. Request booklet No. BDr-511-9A.*

SEE OUR LISTING IN SWEET'S CATALOGUE.

GRANCO STEEL PRODUCTS CO.
(Subsidiary of Granite City Steel Co.)
Granite City, Illinois

GOOD PUMPS *for good buildings*

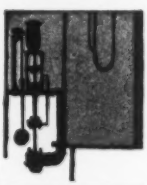
YEOMANS!

For all basic pumping functions in a building there are Yeomans Pumps that will give long years of quiet dependable performance.

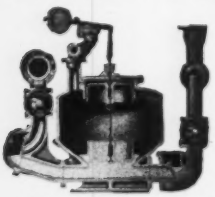
WATER SUPPLY — Since 1898 Yeomans has been solving problems of water supply and circulation in buildings of every kind. Many thousands of successful installations emphasize the soundness of Yeomans Engineering.

CONDENSATION RETURN — Compact design and sound engineering are conspicuous features of Yeomans Pumps in heating systems. They can be depended upon for efficient performance, long life and a minimum of maintenance.

DRAINAGE DISPOSAL — For an end to troubles, install Yeomans Pumps for getting rid of drainage and seepage: Yeomans Heavy Duty Bilge Pump for liquids free from solids, and Yeomans Screenless Ejector for wastes containing solids.



SEWAGE EJECTION — Acknowledged throughout the world as approaching perfection, the trusty Shone* Pneumatic Sewage Ejector is ideal—wherever gallonage is limited and solids are not. Yeomans also builds centrifugal sewage pumps for both wet pit and dry pit installations—in sizes up to 14 inches and capacities up to 24,000 gpm.



Full information concerning Yeomans Pumps, with useful engineering data and installation drawings, is published in Sweet's Architectural and Engineering Files; and also in separate bulletins for your Data File—sent promptly on request. Use the coupon

*TRADE MARK REGISTERED, U.S. PATENT OFFICE

YEOMANS

PUMPS FOR [illegible] INDUSTRIAL APPLICATIONS—
and [illegible] Waste Treatment Equipment

YEOMANS BROTHERS COMPANY
1445 North Dayton Street, Chicago 22, Illinois
Please send Architects' and Engineers' Reference Manual.

Name .....
Firm .....
Address .....
City ..... State .....

(Continued from page 108)

† Ga., Albany—BARRACKS, etc.—B.A. 3/12—U. S. Eng., Post Office Bldg., Savannah, airmens barracks, mess hall administration and warehouse at Turner Air Force Base, Eng 09-133-52-65. Plans deposit $25.

La., Port Allen—NATURAL GAS SYSTEM—B.A. 3/12—West Baton Rouge Parish Police Jury, Port Allen, natural gas sys. Plans deposit $10. Porter, Barry & Switzer, 1730 Main St., Baton Rouge, engrs.

La., Slidell—B.A. 3/12—Post Engr., New Orleans Port of Embarkation, Poland and Dauphine Sts., New Orleans, shaping and resurfacing roads at Camp Villiere, Inv. 52-8.

† Fla., Green Cove Springs—FENCE—B.A. 3/13—Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C., fence to enclose trash dump, NOY 71496. Plans deposit $10.

† Fla., Key West—LINE MAINTENANCE BLDG., etc.—B.A. 3/13—Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C., line maintenance bldg., line duty office and bunk room, water and electric line, U. S. Naval Air Station, NOY 70749. Plans deposit $10. CD 11/30.

† Kentucky—B.A. 3/13—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., local protection Proj. 5 concrete pump stations and appurtenant work, concrete walls and appurtenant wall drains, storage houses, gate well, openings, sewer, etc., Ashland, Boyd Co., along left descending bank of Ohio River, CIVENG 46-022-52-50. CD 1/18.

Miss., Jackson—B.A. 3/13—City, City Hall, Sanitary Sewer Project 125.5C. Approx. $150,000. Plans deposit $20.

† North Carolina—RAILROAD SPUR—B.A. 3/14—Pub. Wks. Office, Bldg. 1005, Marine Barracks, Camp Lejeune, railroad spur from Camp Lejeune, to Cherry Point, at Marine Barracks, Camp Lejeune, Spec. 32219. Plans deposit $50.

† Fla., Orlando—POST EXCHANGE—B.A. 3/14—U. S. Eng., 525 Riverside Ave., Jacksonville, main post exchange Pinecastle Air Force Base, Eng. 08-123-52-125. CD 1/31/51.

▲† Fla., Eglin Air Force Base—BARRACKS, etc.—B.A. 3/18—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., 26 barracks and 4 mess halls. Approx. $5,000,000. Extended date. CD 2/11.

† Ga., Albany—BARRACKS, etc.—B.A. 3/19—U. S. Eng., Post Office Bldg., Savannah, airmen's barracks, mess and administration bldg. and warehouse at Turner Air Force Base, Inv. 52-65. Extended date. CD 2/6.

† Fla., Cocoa—SPECIAL PRODUCTS ASSEMBLY, etc.—B.A. 3/20—U. S. Eng., P. O. Box 4970, Jacksonville, special products assembly and preparation building at Air Force Missile Test Center, ENG 08-123-52-113. Plans deposit $5. CD 4/4.

† Miss., Gulfport—B.A. 3/20—Dpt. Navy, Officer in Charge of Constr., Box 365, Naval Base, Charleston, S. C., resurf. roads at Naval Storehouse, NOY 70716. Plans deposit $10.

† S. C., Charleston—B.A. 3/25—Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C., rehabilitation of fuel facility at Naval Base, NOY 29453. Plans deposit $10.

† Ga., Albany—B.A. 3/27—Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C., streets, water lines, sanitary and storm sewers at U. S. Marine Corps Depot of Supplies, NOY 70665. Extended date. CD 2/6.

BIDS ASKED—BUILDINGS

† Va., Norfolk—CLINIC FACILITIES—B.A. 3/11—Dist. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, addn. facilities at Children's Clinic, U. S. Naval Base, (Benmoreell), Spec. 32544. Plans deposit $10.

▲ Tenn., Knoxville—CHEMISTRY—B.A. After 3/15—University of Tennessee, Administration Bldg., chemistry bldg. $1,000,000. Barber & McMurry, 2505 Kingston Pike N. W., archts. CD 1/17/47.

Ga., Jasper—WAREHOUSE, etc.—B.A. 3/18—Amicalola Electric Membership Corp., Jasper, warehouse and office bldg. $85,000. Plans deposit $25. Southern Eng. Co., 1000 Crescent Ave. N.E., Atlanta, archt.

Va., Norfolk—HOUSING—B.A. 3/18—Norfolk Redevelopment Housing Auth., Dickson Bldg., 752 unit housing, Proj. VA 6-10, E. Brambleton Rd.

▲ La., New Orleans—MEDICAL SCHOOL—B.A. 3/24—Louisiana State University, c/o Business Mgr., School of Medicine, 1542 Tulane Ave., 100,000 sq. ft. medical school addn. Plans deposit $50. Extended date. CD 2/19.

Ala., Sheffield—HOUSING—B.A. 3/27—Sheffield Housing Auth., Sheffield, 54 unit housing, Project Ala 68-1. Extended date. Howard A. Griffith Jr., Sheffield, archt. CD 2/6.

Fla., Panama City—EDUCATIONAL—B.A. 3/28—First Methodist Church, c/o Clyde C. Pearson, archt., First National Bank Bldg., Montgomery, Ala., educational bldg. Plans deposit $20. CD 3/26/47.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ V. B. Higgins Co., Greensboro, N. C., LB $2,514,380. Sugar Creek Sewage Treatment Plant addns.; CHARLotte, N. C. City, City Hall, 600 E. Trade St., Charlotte, N. C. Bids Feb. 14. CD 1/8.

† Merritt Dredging Co., 63 Rutledge Ave., Charleston, S. C., CA, $35,758, maintenance dredging in Intracoastal Waterway, Charleston and Beaufort, Serial No. CIVENG 38-081-52-12, SOUTH CAROLINA, U. S. Eng., Custom House, Charleston, S. C. Bids Feb. 19.

† McCoy-Helgerson Co., 320 S. Hudson St., Greenville, S. C., LB, $104,643, addnl. paving, grading and utilities, Donaldson Airfield, Inv. 38-051-52-21, GREENVILLE, S. C. U. S. Eng., Custom house, Charleston, S. C. Bids Feb. 19.

▲ GEORGIA—State Hy. Dpt. 2, Capital Square, Atlanta,

C. M. Lyle Constr. Co., Gainesville, Ga., CA $77,925, paving 6.824 mi. Shellman Bluff Rd. beginning at U. S. Route 17 and ends at Shellman Bluff Pr-1024 (6), McIntosh Co.; CA $290,326, grading, base, surf. 14.27 mi. Clayton to Pine Mountain Rd., beginning at S.R. 2 in Clayton and ends at S.R. 28 near Pine Mountain FH-5-A and PR 932 (2) Rabun Co.;

Hugh Steele Constr. Co., Centre, Ala., CA, $96,845 grading, base, surf. 6.126 mi. Hogansville to Luthersville Rd., beginning at end of present pavement approx. 2 mi. west of Luthersville and ends at Troup Co. line, S 0738 (3), Meriwether Co.; CA, $145,698, grading, base, surf. 6.399 mi. Jonesboro to Stockbridge Rd., beginning approx. 100 ft. east of S.R. 3 in Jonesboro and ends at S.R. 42 approx. 1 mi. north of Stockbridge, S 0867 (1) Clayton and Henry Counties;

Shepherd Constr. Co., Inc., 1800 Briarcliff Rd., Atlanta, Ga., CA, $274,254, resurf. 30.1 mi. Monroe to Stone Mountain Rd., beginning at S.R. 11 in Monroe and ends 0.77 mi. west of N. Main St., in Stone Mountain, also approx. 0.38 mi. wid'n. Snellville, SAP-RECON 857 (6) Walton, Gwinett and DeKalb Counties; CA, $66,050 resurf. 10.0005 mi. Columbus to La Grange Rd., beginning at Harris Co. line and ends at south city limits of La Grange, SAP-RECON 1185-B, Troup Co.;

Gibson Constr. Co., Donaldsonville, Ga., CA, $72,034 grading, base, surf. 2.155 mi. Donaldsonville to Blakely Rd., beginning at S.R. 91 in Donaldsonville and ends at Miller Co. line, SAP 1192-A (2), Seminole Co.;

Geo., C. Blount & Sons, 72 11 St. N.E., Atlanta, Ga., CA $98,937, stabilized base, surf. 5 mi. Bell to Cade Chapel Rd., beginning at S.R. 17 near Bell and extends toward Cade Chapel, PR-1331 (3), Elbert Co.;

W. Robinson Constr. Co., College Park, Ga., CA, $179,073 grading, base and surf. 6.277 mi. Bowman to Hartwell Rd., beginning at Elbert Co. line and extends toward Hartwell, S 0897 (2) Hart Co.;

Gentry & Thompson, 1005 Northcliff Dr. N.W., Atlanta, Ga., CA, $316,540, wid'n., resurf. 4.163 mi. Summerville to Lafayette Rd., beginning at concrete arch bridge in Summerville and ends approx. 2400 ft. south of south city limits of Trion, SAP-RECON. 805 (5), Chattooga Co.;

Scott Constr. Co., Inc., Thomasville, Ga., CA, $537,860, resurf., wid'n. 1.873 mi., 3 new bridges on Jesup to Ludowici Rd., beginning near west city limits of Ludowici and extends toward Jesup, F 026-3 (1), Long Co.;

Wright Contg. Co., 504 25 Ave., Columbus, Ga., CA, $1,655,726 grading, paving, 5 bridges 1.227 mi. Atlanta North-South Expressway beginning near Brookwood Station and ends at Howell Mill Rd., UI-536 (2-8), Fulton Co.;

McIntosh Paving Co., Inc., 356 Luckie St. N.W., Atlanta, GA, CA $303,660, wid'n., resurf. 22.4 mi. Dalton to Chattanooga, Tenn. Rd., beginning at end of curb and gutter section in Dalton and ends at Tennessee State Line, SAP-RECON 1774 (5), Whitfield and Catoosa Counties;

Georgia-Alabama Paving Co., Brookhaven Rd., Columbus, Ga., CA, $206,432, wid'n., resurf. 12.463 mi. Hamilton to Columbus Rd., beginning in Hamilton and ends at Muscogee Co. line, SAP-RECON 1809-A (2), Harris Co.;

Holland Constr. Co., Mt. Vernon, Ga., CA, $62,698, grading 4.753 mi. Alma to Pearson Rd., beginning at Alma and extends toward Pearson, SAP 1817-D (3), Bacon Co.;

B. L. Jones & Co., Winder, Ga., CA, $151,384, grading, base, surf. 4.208 mi. Taccoa to Homer Rd., beginning at State Route 13, approx. 4 mi. southwest of Toccoa and extends toward Homer, S-1334 (1), Stephens Co.;

E. A. Hudson's Sons, Bolton, Ga., CA, $308,590, grading, base surf. a bridge at Beach Creek on Tallapoosa to Buchanan Rd., beginning at State Route 100 in Tallapoosa and ends at State Route 1 in Buchanan, S 0836 (1), Haralson Co.;

Ledbetter-Johnson Co., Rome, Ga., CA, $238,253, grading base, surf. 8.067 mi. Morganton to Dahlonega Rd. beginning S.R. 2 in Morganton and extends toward Dahlonega S 0852 (1), Fannin Co. Grand total $5,082,285. Bids Feb. 8. CD 1/29.

Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga., Owner Builds, $100,000, addnl. telephone lines, ATHENS, GA.

Harris Co., c/o Jim Evans, warden, Chipley, Ga., Owner Builds, $75,000, grading 8½ mi. Whitesville Rd., CHIPLEY, GA.

▲ Wright Contg. Co., 504 25 Ave., Columbus, Ga., CA $3,000,000, paving runway, MARIETTA, GA. Lockheed Aircraft Corp., Marietta, Ga. (Correction—cost). CD 1/29, under CA.

† American Dredging Co., 12 S. 12 St., Phila., Pa., CA, $112,963, dredging in St. Johns River from mouth of Trout Creek to Jones Point Cut, Jacksonville Duval Co., FLORIDA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. CD 11/24/43.

Geo. E. Bunnell Inc., 15151 W. Dixie Hy., Miami Beach, Fla., CA, $60,000, bulkhead on N.E. 11 St. and Biscayne Key, MIAMI, FLA. Rory Corp., c/o contractor.

▲† Seaboard Machinery Co., Panama City, Fla., CA, $15,000,000, constr. new type floating dock at old Wainwright Shipyard, PANAMA CITY, FLA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala. Awardeu Feb. 20.

J. D. Manly Constr. Co., Leesburg, Fla., CA, $65,000 street paving, WILDWOOD, FLA. City, Wildwood, Fla.

Henderson, Black & Green, Troy, Ala., CA $107,096 WW imprvs., TROY, ALA. City, Troy, Ala. Bids Feb. 20. CD 2/6.

Jones & Laughlin Steel Corp., P. O. Box 66, New Orleans, La. CA $191,952. Furnish, erect 930 tons structural steel framing and substructure of Napoleon Ave. Wharf, NEW ORLEANS, LA. Port of New Orleans Comrs., 2 Canal St., New Orleans, La. Bids Feb. 19. CD 2/5.

C. F. Rule Constr. Co., 217 13 Ave., Nashville, Tenn., LB $515,875, sewage disposal plant, COOKEVILLE, TENN. City, City Hall, Cookeville, Tenn. Bids Feb. 15. CD 1/3.

BUILDINGS

JOW BIDS AND CONTRACTS

† ron & Reynolds, Inc., 1724 H St. N. W., Wash., D. C. CA. $937,230, 450-man BARRACKS, Inv. 52-18, FORT LEE, VA. U. S. Eng., foot of Front St., Norfolk 1, Va. Bids Feb. 14. CD 2/25, under LB.

▲ Doyle & Russell, Central Natl. Bank Bldg., Richmond, Va., CA $1,385,960, PLANT addns., NEWPORT NEWS, VA. Newport News Shipbuilding & Dry Dock Co., Newport News, Va., Bids Feb. 15. CD 2/7.

Endebrock-White, Newport News, Va., LB $824,000. Negro HIGH SCHOOL, SUFFOLK, VA. City, Suffolk, Va. Bids Jan. 17.

Ervin Constr. Co., Eastway Dr., Charlotte, N. C. Owner Builds. Approx. $500,000. RESIDENTIAL DEVELOPMENT, CHARLOTTE, N. C.

▲ H. L. Coble Constr. Co., Greensboro, N. C., CA. $1,448,000. 240 HOUSING units, DURHAM, N. C. Durham Housing Auth., 206½ Corcoran St., Durham, N. C. Bids Feb. 14. CD 2/21, under LB.

▲ H. L. Coble Constr. Co., Greensboro, N. C., CA. $1,596,000. 263 HOUSING units, WINSTON-SALEM, N. C. Winston-Salem Housing Auth., Reynolds Bldg., Winston-Salem, N .C. Bids Feb. 19. CD 1/29.

† General Constr. Co., 1815 Blanding St., Columbia, S. C., LB $136,300, WAREHOUSE, COLUMBIA, S. C. Dpt. Army, South Carolina National Guard Bureau, Wade Hampton State Office Bldg., Columbia, S. C.

Consolidated Realty Investments, Inc., 40 Pryor St., N. E., Atlanta, Ga. Owner Builds, $100,000 WAREHOUSE and OFFICE, 75 8 St. N. E., ATLANTA, GA.

▲ A. B. Newton & Co., Vidalia, Ga., CA, $1,647,000 HOUSING, Projects GA 103 and GA 104, VALDOSTA, Ga. Valdosta Housing Auth., Valdosta, Ga. Bids Feb. 12. CD 2/20, under LB.

Robert Rickell, 1609 N. E. 17 Terrace, Fort Lauderdale, Fla. Owner Builds, $350,000, RESIDENTIAL DEVELOPMENTS, FORT LAUDERDALE, FLA.

Blue Ribbon Constr. Co., 3333 Palm Ave., Hialeah, Fla., Owner Builds, $700,000, 80 RESIDENCES, HIALEAH, FLA.

R. C. Collins, 1938 S. W. 24 Terrace, Miami, Fla. Owner Builds, $200,000, RESIDENTIAL DEVELOPMENT, MIAMI, FLA.

Este Co., 4401 Alton Rd., Miami Beach, Fla., Owner Builds, $350,000, RESIDENTIAL DEVELOPMENTS, MIAMI, FLA.

Nims Inc., 835 Lincoln Rd., Miami Beach, Fla., CA, $300,000, RESIDENCES in Biscayne Village Heights Subdivision, MIAMI, FLA. August Tobler, Inc., c/o contractor.

Rodgers-Lamont Corp., 3014 Coral Way, Miami, Fla., CA $300,000, RESIDENTIAL DEVELOPMENTS, MIAMI, FLA. G. V. S. Corp., c/o contractor.

Wm. Noble, Jack Conant & Fred Schock, Wildwood, Fla., Separate Contract, $350,000, RESIDENTIAL DEVELOPMENT, PALMETTO, FLA.

R. M. Thompson Co., 710 Grand Central Ave., Clearwater, Fla. CA, $500,000 SHOPPING CENTER, ST. PETERSBURG, FLA. G. & F. Realty Corp., c/o contractor.

Ray Salinas, 825 51 Ave. N., St. Petersburg, Fla., Owner Builds, $750,000, 65 RESIDENCES, ST. PETERSBURG, FLA.

Hammer Building Supply, 1302 Grand Central Ave., Tampa, Fla., Owner Builds, $300,000 RESIDENTIAL DEVELOPMENTS, TAMPA, FLA.

Murphey Pound Constr. Co., Hill Bldg., Columbus, Ga., CA $85,000, WAREHOUSE, COLUMBUS, GA. Muscogee News Co., 1112 Front Ave., Columbus, Ga.

Fiske-Carter Constr. Co., Masonic Temple, Greenville, S. C., CA $369,000, MILL NO. 2 addn., SHAWMUT, ALA. West Point Mfg. Co., West Point, Ga. Bids Jan. 24. CD 1/15.

Meisner & Craig, Gulfport, Miss., CA, $85,000 Newspaper PLANT ANNEX, GULFPORT, MISS. Daily Gulfport Biloxi Herald, c/o Smith & Dawson, archts., Legion Bldg., Gulfport, Miss. Bids Feb. 12. CD 2/7.

▲ Dye & Mullings, P. O. Box 485, Columbia, Miss. CA $1,064,868. HOSPITAL, HOUMA, LA. Terrebonne Parish Police Jury, Houma, La. CD 2/21, under LB.

B & Q Constr. Co., 511 N. Villere St., New Orleans, La., CA, $100,000, WAREHOUSE, KENNER, LA. Studebaker Corp., 1644 Religious St., New Orleans, La.

Frank Horner, Inc., 1810 Lyons St., Shreveport, La. Owner Builds. $350,000. RESIDENTIAL DEVELOPMENT, SHREVEPORT, LA.

▲† Penker Constr. Co., 1030 Summer St., Cincinnati, O. LB $1,922,450. 100 igloos, (AMMUNITION STORAGE) for Blue Grass Ordnance Plant, LEXINGTON, KY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids Feb. 20. CD 1/23.

▲ Sullivan & Cozzart, 822 W. Kentucky St., Louisville, Ky. LB $1,000,000. 80x260 ft., 35 ft. high, concrete, brick, steel PLANT to mfg. linings for steel furnaces, LOUISVILLE, KY. Corhart Refractories Co., 1600 W. Lee St., Louisville, Ky.

Harmon Constr. Co., 100 S. Indiana St., Oklahoma City, Okla., CA. $569,777, HOSPITAL addn. JACKSON, TENN. Jackson-Madison County, Jackson, Tenn. Bids Jan. 8. CD 2/8, under LB.

WBW Homes, Inc., c/o J. M. Wainwright, pres., 13 N. 21 St., Birmingham, Ala. Owner Builds. $650,000. 87 APARTMENT units on 189 acre site. TULLAHOMA, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† O., Columbus—AIRPORT IMPRVS.—B.A. On Or About 3/11—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., runway and taxiway numbering and marking at Lockbourne Air Force Base, Serial No. ENG 46-022-52-104.

† Mich., Kinross—ALERT HANGAR—B.A. 3/11—U. S. Eng., 1900 Cadillac Tower, Detroit, alert hangar, Kinross Air Force Auxiliary Field, Eng. 20-064-52-46. CD 2/7.

† O., Chillicothe—B.A. 3/11—Veterans Admin., Vermont Ave. between H and I Sts. N. W. Wash. 25, D. C., sewage treatment plant, incl. control house with digester; one primary basins structure; 2 trickling filters; one secondary basins structure; one sludge beds structure, incl. grading, plumbing, heating, electrical work, outside services, etc. for Veterans Admin. Hospital and U. S. Federal Reformatory.

† Wis., Madison—TAXIWAY—B.A. 3/11—U. S. Eng., 428 Federal Bldg., Milwaukee, Zone 1, constructing taxiway exten., Truax Air Force Base, Serial No ENG 47-0 13-52-11. Extended date. CD 2/4.

Wis., Neillsville—B.A. 3/11—City, water treatment plant imprvs. $139,300. Plans deposit $20. L. L. Klinger, 9 St. S., Wisconsin Rapids, engr. CD 9/12.

† Michigan—B.A. 3/12—U. S. Eng., 428 Federal Bldg., Milwaukee 1, Wis., removal and disposal approx. 125,000 cu. yd. place measurement of materials other than ledge rock from shoal areas in 100 ft. wide channel between mile 17 in Grand River to proj. depth of 8 ft. below low water datum, CIVENG 47-013-52-18. CD 6/9/44.

† Mich., Kinross—SEWERS etc.—B.A. 3/12—U. S. Eng., 1900 Cadillac Tower, Detroit, sanitary sewers, sewage disposal plant, treatment facilities, appurtenances, Kinross Auxiliary Air Field, Eng. 20-064-52-50. CD 8/29, under Mich., Sault Ste Marie.

† O., Warren—B.A. 3/14—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., paving 103,500 sq. yd. storage area at Lordstown Ordnance Depot, Serial No. ENG 46-022-52-105. CD 1/18.

Wis., Strum—B.A. 3/17—Village, sewage treatment plant, pumping station and reservoir, tank, pumps. Plans deposit $20. General Eng. Co., Portage, engr. CD 4/18.

† Wis., Madison—FENCING—B.A. 3/18—U. S. Eng., 428 Federal Bldg., Milwaukee, Zone 1, security fencing at Truax Air Force Base, Serial No. ENG 47-013-52-14. CD 6/27.

BIDS ASKED—BUILDINGS

Ind., Hoagland—SCHOOL—B.A. 3/11—Bd. Trustees, Madison and Marion Consolidated School, Hoagland, school addn. Plans deposit $25. LeRoy Bradley, 1115 S. Clinton St., Fort Wayne, 2, Ind., archt.

Mich., Newberry—HOSPITAL—B.A. 3/11—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, 2 story, brick, concrete infirmary-nursery at Newberry State Hospital, $300,000. Plans deposit $25, Schilling, Sewell & Schuettley, 730 Michigan Bldg., Detroit, archts.

† Wis., Camp McCoy—SIGNAL CRYPTO—B.A. 3/12—U. S. Eng., 482 Federal Bldg., Milwaukee, Zone 1, signal crypto building, Serial No. ENG 47-013-52-13. Bid date changed. CD 2/8.

Mich., Ann Arbor—RESEARCH—B.A. 3/19—Bd. Regents, University of Michigan, W. K. Pierpont, vice pres., 2 story, bsmnt. Cooley Memorial Research Bldg. $800,000. Plans deposit $50, refundable, C. L. T. Gabler, 924 Hammond Bldg., Detroit, archt. CD 4/16/51.

† O., Brookfield and Bellefontaine—HOUSING—B.A. On Or About 4/15—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., erecting family housing, Lot A, 9 pre-fabricated houses, near Brookfield, approx. 12 mi. north of Youngstown; Lot B, 9 pre-fabricated houses, near Bellefontaine, approx. 31 mi. north of Springfield, incl. utilities, Serial No. ENG 46-022-52-109.

Mich., Dearborn—STORAGE, etc.—Bids Asked—Ford Motor Co., Rouge Plant, 3000 Schaffer St., brick, concrete storage bldg. and truck dock. CD 6/7/46.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ILLINOIS—State Div. Hys., Springfield, rejected bids Feb. 15, wid'n. 3 bridges, Ill. Rte. 146, Union Co., LB, $109,741. CD 2/20, under LB.

ILLINOIS—State Div. Hys., Springfield, rejected bids Feb. 15, bit. resurf. 13.53 mi. Route 72, Carroll and Ogle Counties, LB, $330,399 bit. resurf. 4.81 mi. Ill. Rte. 38, Jersey Co., LB, $147,934; bit. resurf. 8.97 mi. U. S. Rte. 67, Madison and Jersey Counties, $220,168; c. conc. base course 1.05 mi. U. S. Rte. 50, St. Clair Co., LB, $222,491. CD 2/20, under LB.

† U. S. Eng., 520 Merchandise Mart, Chicago, 54, Ill., cancelled bids to have been opened Feb. 26 constr. 69 kv. sub-station at Chanute Field, Serial No. Eng 11-032-52-35, RANTOUL, ILL. Will re advertise. CD 1/23.

BUILDINGS

LOW BIDS AND CONTRACTS

Schwartz Realty Co., Crawfordsville, Ind. Owner Builds, $500,000, 50 prefabricated HOUSES, CRAWFORDSVILLE, IND.

J & L Realty Co., 803 Lemcke Bldg., Indianapolis, Ind., Owner Builds, $400,000, 25 HOMES, INDIANAPOLIS, IND.

† **Blauner Constr. Co.**, 208 N. Wells St., Chicago, Ill., LB $552,800, permanent Parachute REPAIR SHOP for Jeffersonville Q. M. Depot, JEFFERSONVILLE, IND. U. S. Eng., 830 W. Broadway, Louisville, Ky. Bids Feb. 19. CD 1/16.

Henry DeKoning Constr. Co., 320 Municipal Court Bldg., Ann Arbor, Mich. LB $797,525, general contract Junior High SCHOOL, MONROE, MICH. City, Bd. Educ., Monroe, Mich. Bids Feb. 5. CD 1/11.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Colorado**—B.A. 3/12—U. S. Eng., 1709 Jackson St., Omaha, Neb., protective fencing at Cherry Creek Reservoir, Inv. 52-82. CD 6/1/44.

† **Arkansas**—B.A. 3/20—U. S. Eng., P. O. Box 60, Vicksburg, Miss., clearing Blakely Mountain Reservoir on Quachita River, Garland and Montgomery Counties Serial No. CIVENG 22-052-52-126 CD 11/13

† **Arkansas**—B.A. 3/26—U. S. Eng., P. O. Box 60, Vicksburg, Miss., constructing approx. 1,104,000 cu. yds. earthwork on North Bank of Arkansas River in Jefferson Co., CIVENG 22-052-52-135 CD 12/24/42

▲ **Texas**—ELECTRICAL WORK—Bids Asked—Gulf Refining Co., Gulf Bldg., Houston, electric work on crude oil pipe line between Colorado City and Sour Lake, Wortham, Lucas. $1,035,000. CD 11/14

BIDS ASKED—BUILDINGS

Neb., Omaha—SCHOOL—B.A. 3/11—Bd. Educ., 3902 Davenport St., Western Hills School, $496,000. N. S. Wallace, Omaha Natl. Bank Bldg., archt. CD 3/14/51.

Ia., Laurens—BUILDING—B.A. 3/12—City building changes and imprvs., generating equipment $70,000. Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, engrs.

Ark., Blytheville—HOSPITAL—B.A. After 3/15—Mississippi Co., Blytheville, hospital. Approx $350,000. Bruce R. Anderson, Wallace Bldg., Little Rock, archt. CD 9/20/50.

Neb., Schuyler—HIGH SCHOOL—B.A. 3/18—Bd. Educ., Schuyler high school. $430,000. John Latenser & Sons, 1307 Farnam St., Omaha, archts. CD 12/18

▲ **Tex., Sunray**—PLANT—Bids Asked—Phillips Petroleum Co., Bartlesville, Okla. natural gasoline plant, $1,007,225 CD 12/17

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Walter Kahler, c/o Butler Theater, Butler, Mo. Owner Builds. $60,000. 300-car drive-in motion picture theater, near BUTLER, MO.

▲ **Southwestern Bell Telephone Co.**, W. E. Bray, mgr., 715 Louisiana St., Little Rock, Ark. Owner Builds, $4,000,000, coaxial cable between Little Rock, Ark. and Memphis, Tenn., ARKANSAS and TENNESSEE

† **R. B. Stovall Constr. Co.**, 6543 Forest Park Rd., Dallas, Tex., LB $795,785, apron exten. at Amarillo Air Force Base, Spec. No. ENG 34-066-52-25, AMARILLO, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Feb. 22. CD 2/14.

Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, Tex., Force Account. $135,000 unit of electric power sys. extens., imprvs. from pole to underground, CORPUS CHRISTI, TEX. CD 1/9/50.

Elder Constr. Co., 903 Chartres St., Houston, Tex., LB $63,943, est. $77,000, Ingraham Gully Storm Sewerage Sys., Unit 3, HOUSTON, TEX. City, City Hall, 900 Brazos St., Houston, Tex. L. Fugate, city engr. Bids Feb. 13.

Gulf Bitulithic Co., 2820 Polk St., Houston, Tex., LB $78,173, est. $75,800, asph. paving Old Main St. Rd.;

Marvin Brown, Inc., 4304 Dixie Dr., Houston, Tex., LB $100,536, est. $112,500, asph. paving T. C. Jester Blvd., Sect. 13, HOUSTON, TEX., City, City Hall, 900 Brazos St., Houston, Tex., L. Fugate, city engr. Bids Feb. 13.

† **George J. Fulton Co.**, 315 S. Staples St., Corpus Christi, Tex., and **R. O. Davis, Inc.**, Box 250, Austin, Tex., LB $219,991, rehabilitation 14 barracks and bldgs. at Naval Auxiliary Air Station, Constr. NOY 71456 and NOY 71459, KINGSVILLE, TEX. U. S. Govt., Officer in Charge of Construction, Bldg. 1, Naval Air Station, Corpus Christi, Tex. Bids Feb. 14. CD 7/12.

† **R. B. Stovall Constr. Co.**, P. O. Box 7143, Dallas, Tex., CA. $795,784, construct runways, taxiways, install runway lighting sys. at Perrin Air Force Base, ENG 34-066-52-28, SHERMAN, TEX. U. S. Eng., Box 61, Tulsa 2, Okla., Bids Feb. 12, awarded Feb. 18. CD 2/20.

† **Chicago Bridge & Iron Co.**, 332 S. Michigan Ave., Chicago, Ill., LB $80,675, est. $100,000, 300,000 gal. 125 ft. domestic water tank, Rocky Flats Project, Inv. 292-52-9. BOULDER, COLO. U. S. Atomic Energy Comn., P. O. Box 5400, Albuquerque, N. M. Bids Feb. 14. CD 1/29.

† **Western Paving Constr. Co.**, 5105 Washington Ave., Denver, Colo., LB, $704,457 (1);

Union Power Constr. Co., 2431 S. University Blvd., Denver, Colo., LB, $60,758, (3), aprons, taxiways and maintenance docks at Lowry Air Force Base, DENVER, COLO. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Feb. 12. CD 1/16.

BUILDINGS

LOW BIDS AND CONTRACTS

Howard Donald, Festus, Mo. CA $240,000. 1 story, 41x120 ft. and 41x90 ft., L-shaped, brick, concrete LABORATORY and OFFICE, HERCULANEUM, MO. St. Joseph Lead Co., 250 Park Ave., New York 17, N. Y. Bids Dec. 17. CD 12/12

Fruin-Colnon Contg. Co., 1706 Olive St., St. Louis 3, Mo. CA $100,000, 1 story, 70x81 ft. to present 2 story, 100x116 ft., brick, concrete PRINTING PLANT, 736 S. 7 St., ST. LOUIS, MO. Guy A. Thompson, trustee, Missouri Pacific R. R. Co., W. H. Hobbs, ch. engr., 1218 Olive St., St. Louis 3, Mo. L. Roy Bowne, 315 N. 7 St., St. Louis 1, Mo., engr. and archt.

▲ **Joseph H. Vatterott Realty & Building Co.**, 10253 St. Charles Rock Rd., St. Louis 14, Mo. Owner Builds. $1,250,000. 165 asbestos shingle concrete stn. DWELLINGS. New Woodson Rd. between Natural Bridge and St. Charles Rock Rds. in Woodson No. 4 Subdivision, ST. LOUIS COUNTY, MO.

Hardesty & Johnson Builders, Larimer Rd., St. Louis Co., Mo. CA $400,000. 50 brick BUNGALOWS, Hazelwood Court subdivision along Utz Lane west of U.S. No. 66, ST. LOUIS COUNTY, MO. Hardesty Development Co., 14 S. Central Ave., Clayton 5, Mo.

▲ **Phillips Petroleum Co.**, Bartlesville, Okla., Own Forces. Approx. $157,700, special alkylation FEED FACILITIES Unit. Approx. $1,604,315, Aviation Alkylite REFINERY Unit,, near BORGER, TEX. CD 11/15.

Hal C. Dyer, Lone Star Gas Bldg., Dallas, Tex., CA. $638,862, Hillcrest HIGH SCHOOL addn., DALLAS, TEX. Dallas Independent School Dist., Akard and Royal Sts., Dallas, Tex. Bids Feb. 11, awarded Feb. 16. CD 2/28, under LB.

▲ **Robert E. McKee**, P. O. Drawer 562, El Paso, Tex., CA. $1,037,000, est. $1,000,000, 24 DWELLING bldgs., site imprvs., landscape work, etc. Tex 35-5, EL PASO, TEX. El Paso Housing Auth., c/o E. W. Graham, exec. dir., El Paso, Tex. Bids Feb. 6. CD 2/12, under LB.

Forty Oaks Center, Inc., R. L. Bird, pres., 1608 N.W. 26 St., Fort Worth, Tex., Own Forces. $345,000, 1 story, 500x550 ft., SHOPPING CENTER, FORT WORTH, TEX. CD 11/27.

Faulkner Building Co., West Bldg., Houston, Tex., Owner Builds. $325,000. 40 addnl. DWELLINGS. Approx. $325,000, 40 addnl. dwellings, HOUSTON, TEX. CD 2/13.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Calif., Stockton**—SERVICE STATION—B.A. 3/14—U. S. Property & Disbursing Officer for Calif., P.O. Box 11361, Sacramento, army aircraft fuel service station at Stockton Field, Inv. NG 04-376-52-7.

† **Washington**—SWITCHGEAR ASSEMBLY—B.A. 3/18—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, f.o.b. cars Quincy, switchgear assembly, etc. for Babcock Pumping Plant, Columbia Basin Proj., Spec. DS 3658. L. N. McClellan, ch. engr.

Wash., Wenatchee—B.A. 3/19—Chelan Co. Public Utility Dist., c/o Stone & Webster Eng. Corp., engrs., 49 Federal St., Boston, Mass., water spray fire protection sys. for transformers in enlargement of Rock Island Dam.

† **Washington**—B.A. 3/27—Bureau Reclamation, Dpt. Interior, Ephrata, constr. Ringold Pumping Plant, approx. 3½ mi. east or Ringold, Columbia Basin Proj., Spec. DC 3674. L. N. McClellan, Bldg. 53, Denver Federal Center, Denver, Colo., ch. engr.

† **Idaho**—B.A. 4/1—Bureau Reclamation, Dpt. Interior, Idaho Falls, Palisades Dam and Power Plant and relocation sys. of American Falls, Proj., near Irwin, Spec. DC-3675; adv. ENR 3/6. CD 9/12/44.

BIDS ASKED—BUILDINGS

▲ **Calif., Eureka**—HOSPITAL—B.A. About 3/15—Sisters of St. Joseph, St. Joseph Hospital, Steward Dr., Orange, (selected list bidders) general hospital, $1,350,000. Frank T. Goergeson, 537 G. St., archt. CD 4/13.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Enoch Smith Sons Co., 1441 Beck St., Salt Lake City, Utah, CA. $315,452, est. $500,000, sewerage collecting sys., AMERICAN FORK, UTAH, American Fork Municipal Corp., City Hall, American Fork, Utah. Bids Dec. 27. CD 10/1.

T. G. and J. B. Rowland, 1568 S. 11 East St., Salt Lake City, Utah, CA. $36,679, est. $65,000, drainage project, consisting approx. 16,000 lin. ft. drain tile varying in diam. from 8- to 21-in., together with manholes and structures, RIVERTON, UTAH. Riverton Drainage Dist., Riverton, Utah. U. S. Soil Conservation Service, 1st. Natl. Bank Bldg., Murray, Utah, engr.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Olson Constr. Co.**, P.O. Box 89, Salt Lake City, Utah, CA. $1,113,281, 4 BUILDINGS for Weber Junior College's new campus, OGDEN, UTAH. State Bldg. Bd., State Capitol, Salt Lake City, Utah. Bids Dec. 28. CD 1/23, under CA.

▲ **New Housing, Inc.**, 2017 W. 57 St., Seattle, Wash., Day Labor. $1,080,000, 144 duplex HOUSING units, BREMERTON, WASH. R. L. Durham & Assocs., 1100 Denney Way Seattle, Wash., engrs. CD 2/14.

▲ **Pozzo Constr. Co.**, 2403 Riverside Dr., Los Angeles, Calif. LB $1,319,169, 4 story, rein.-con. St. Joseph's HOSPITAL addn., BURBANK, CALIF. Sisters of Charity of the House of Providence, 501 S. Buena Vista St., Burbank, Calif. Bids Feb. 15. CD 2/14.

Ellis W. Barker Co., Ness Bldg., Salt Lake City, Utah, LB, $732,600, HIGH SCHOOL; LB, $647,700, ELEMENTARY SCHOOL, CHICO, CALIF. Bd. Educ., Chico, Calif. Bids Feb. 14. CD 1/14.

United Constr. Co., 3839 Riverside Blvd., Sacramento, Calif., LB, $326,940 Fruitridge Elementary SCHOOL, SACRAMENTO, CALIF. Fruitridge Elementary School Dist., 4625 44 St., Sacramento, Calif. Bids Feb. 14.

L. C. Anderson, 3040 Hancock St., San Diego, Calif., CA. $346,436, Alice M. Birney SCHOOL, SAN DIEGO, CALIF. San Diego Unified School Dist., 825 Union St., San Diego, Calif. Bids Feb. 13. CD 11/16/50.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska, Kodiak**—B.A. 3/26—Alaska P. Wks., Dpt. Interior, Juneau, 2 timber, concrete buttress or rock-filled impregnated-core dams and 1,200 ft. c.i. asbestos-cement or wood stave supply main, Proj. Aaa 50-A-46. $195,534. Plans deposit $25. Hubbell & Waller Eng. Corp., 416 Queen Anne Ave., Seattle, Wash., engrs.

BIDS ASKED—BUILDINGS

† **Alaska, Anchorage**—RECEIVER BLDG., etc.—B.A. 3/18—U. S. Eng. (APO 942, Seattle, Wash.) Anchorage, 1 story, 23x83 ft., rein.-con. receiver bldg. 2 story, bsmnt., 24x90 ft., family quarters at Site A; 25x63 ft., rein.-con. power plant at Site B; 1 story 62x97 ft., rein.-con. toll bldg.; 1 story, 25x96 ft. frame warehouse and 2 story, 24x180 ft. family quarters at Site C, all for ACS facilities, near here, ENG 95-507-52-45. Plans deposit $25.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Patti Constr. Co.** and **MacDonald Building Co.**, 1340 Admiral St., Kansas City, Mo., LB $7,131,842, est. $10,071,135, Army COMMUNICATIONS STATION, Inv. 52-15, KENAI, ALASKA. U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska. Bids Feb. 14. CD 1/23.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Alta., Penhold—MESS—B.A. 3/11—**Defence Construction Ltd.**, 400 Kensington Bldg., Winnipeg, Man., two messes at air force base, Fe-l 122-7-P4-9 (Job 2833). Plans deposit $100. W. J. Milkausen, c/o owner, regional engr.

N. B., Chatham—STORAGE BLDGS.—B.A. 3/11—P. J. Mangan, 1032 Gottingen St., Halifax, N. S., two explosive storage bldgs. for Dept. of Canada, Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont. Plans deposit $100. Defence Construction (1951) Ltd., 70 Lyon St., Ottawa, Ont., engr.

Ont., Cobourg—B.A. 3/12—J. M. Jordan, engr., c/o Northumberland and Durham Counties, Cobourg, 70 ft. rein.-con. rigid frame bridge over Factory Creek. Approx. $475,000.

BIDS ASKED—BUILDINGS

B. C., Prince Rupert—HOUSES—B.A. 3/18—J. L. Adams, engr., Central Mortgage & Housing Corp., 360 Homer St., Vancouver 50 low-rental houses. $450,000. Plans deposit $100. CD 12/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Bennett & White Constr. Co. Ltd., 660 Howe St., Vancouver, B. C., CA, $70,000, power house, equipment bldg. and other airport development at Sandspit Airport, near VANCOUVER, B. C. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Jan. 14, awarded Feb. 14. CD 12/31.

Foundation Co. of Canada Ltd., 1220 Bay St., Toronto, Ont., CA $100,000, three 1 story, 24x30 ft., television relay stations at Uxbridge, Bethany and Hastings, TORONTO, ONT. Bell Telephone Co. of Canada, 76 Adelaide St. W., Toronto, Ont. Bids Nov. 20, awarded Feb. 18. CD 11/14.

Jobbing Constr. Co., 7 Racine St., Chicoutimi, Que., CA, $145,000, pumphouse building pipes, valves, etc., BAGOTVILLE, QUE. Govt. of Canada, Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont. Defence Constr. (1951) Ltd., 70 Lyon St., Ottawa, Ont., engr.

BUILDINGS

LOW BIDS AND CONTRACTS

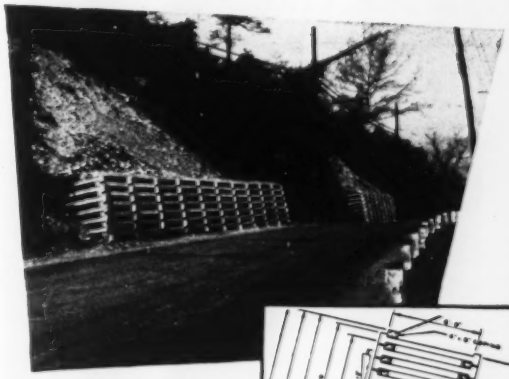
Sault Ste. Marie Structural Steel Co. Ltd., Wilde St., Sault Ste. Marie, Ont. Owner Builds, $525,000 steel work for structural steel shop and office, SAULT STE. MARIE, ONT. CD 6/21.

▲ **Piggott Constr. Co. Ltd.**, 1250 Bay St., Toronto, Ont., CA, $1,600,000, 2 story, 59x369 ft., with wing 40x100 ft., MEDICAL RESEARCH LABORATORIES, 1 story, 50x60 ft., ANIMAL CLINIC, rein.-con., brick, TORONTO, ONT. Defence Construction Ltd., 441 Queen's Quay W., Toronto, Ont. R. P. Dale,

(Continued on page 114)

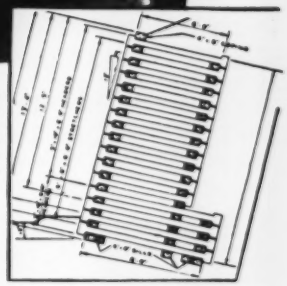
10 Different Jobs for *UNIVERSAL* CONCRETE CRIBBING

1. Bridge abutments and wings
2. Erosion control walls
3. Flood control levees
4. Loading docks
5. Grade crossing approaches
6. Highway underpasses
7. Hydraulic intake and outlet works
8. Shore, river and harbor protection walls
9. Industrial property conservation
10. Railway and highway embankment retaining walls



Write for free 8-page "CRIBBING" folder!

CONTRACTORS! If doing business abroad, Universal can supply you with pipe-making machines and all accessories for making pipe. Write for details.



Universal also produces closed-face cribbing in addition to open-face type shown in photo. Drawing shows construction technique.

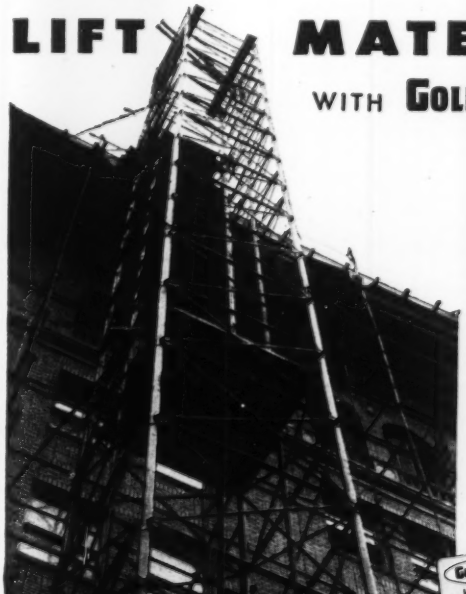
UNIVERSAL CONCRETE PIPE CO.

Home Office: 297 S. High St., Columbus 15, Ohio

ALABAMA: Decatur, Dothan, Florence. **FLORIDA:** St. Petersburg, Tallahassee, Tampa. **GEORGIA:** Atlanta (office). **NEW JERSEY:** Kenvil. **NEW YORK:** Binghamton, New York City (office), Port Washington, Rochester, Syracuse. **OHIO:** Columbus, Zanesville. **PENNSYLVANIA:** Norristown, Pittsburgh. **TENNESSEE:** Nashville. **WEST VIRGINIA:** Clarksburg, New Martinsville, Wheeling. **AFFILIATES** — Concrete Pipe Co. of Ohio, Cleveland, Sandusky, Youngstown, Ohio; Erie, Penn. — Florida Concrete Pipe Co., Ocala, Fla. — Dixie Concrete Pipe Co., Louisville, Ky.

LIFT MATERIALS for LESS!

WITH GOLD MEDAL STEEL HOIST TOWERS



This is only *one of many* types of equipment we have to help contractors increase profits by cutting construction costs. Gold Medal Steel Hoist Towers save erection and dismantling time and speed up material handling.

Firesafe — they're easier and more economical to erect than wooden towers . . . and much *safer*, of course. All parts — interchangeable — are recoverable — they're used again and again *without waste.*

GOLD MEDAL TOWERS have many uses . . . and you save on all! They're ideal for new construction or renovation work, top additions, concrete work and many other applications.

Remember this: We have *all* types of modern scaffolds. That's a convenience *no other supplier* can offer you. Our stocks of scaffolding, spotted in major cities from coast to coast, are the largest and most complete. *One* source for every type scaffold! *Whatever your job . . . we can scaffold it for you with the* RIGHT *scaffold.*

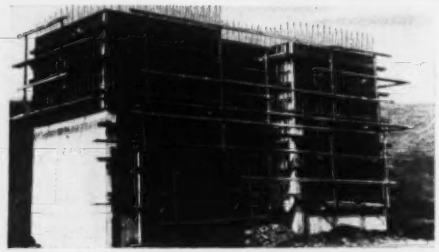
Get the facts! Ask for FREE Bulletin HT-2. See how these towers can speed your jobs and save you time and money.

GOLD MEDAL LADDERS SCAFFOLDING

for Greater Safety...Efficiency...Economy

THE PATENT SCAFFOLDING CO., Inc

38-21 12th Street, Dept. ENR, Long Island City 1, N. Y.
West Coast Plant: 6931 Stanford Ave., Los Angeles 1, Calif.



You Don't Buy New Forms for Every Job

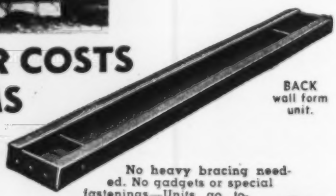
Atlas Speed Forms are interchangeable for use on slabs, walls, circular tanks, manholes, modular structures. For Rent or Sale.

BEAT HIGH LABOR COSTS with SPEED FORMS

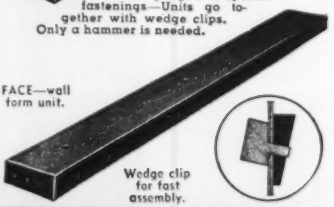
SPEED FORMS can be set up, stripped, cleaned, moved and reused much faster than wood. Lightweight, easy to handle. Interchangeable for use on walls, slabs, circular tanks, manholes, modular structures.

Made of Steel—Good for reuse again and again on job after job indefinitely without repair. Reduce material costs way below wood—Many records of 400-500 and more uses.

Just send us plans of the job. Let us show you how to Save *Real* Money on Form Work. Write Dept. *RN*.



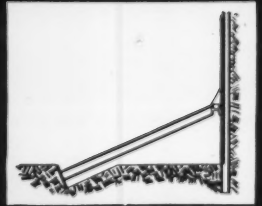
No heavy bracing needed. No gadgets or special fastenings—Units go together with wedge clips. Only a hammer is needed.



IRVINGTON FORM & TANK CORP.
20 Vesey St. New York 7, N. Y.

LABOR-SAVING *SPEED* FORMS

DIFFICULT FOUNDATION WORK



- FOUNDATIONS
- CAISSONS
- UNDERPINNING
- SHEETING & BRACING
- PILING & SHEETING
- SHORING
- COFFERDAMS
- MOVING STRUCTURES
- SPECIAL SERVICES

Write for revised catalog.

SHEETING AND BRACING

The special skills and techniques required for deep excavations accomplished with maximum speed and safety are routine with Spencer, White and Prentis engineers.

Minimizing of the movement of the banks of an excavation and the protection of adjacent buildings are among the results that Spencer, White & Prentis accomplish with the greatest possible economy and efficiency.

Consult with us without obligation.

SPENCER, WHITE & PRENTIS, INC.

10 East 40th Street, New York 16 • Hammond Bldg., Detroit, Mich.

In Canada

Spencer, White & Prentis of Canada, Ltd.
2052 St. Catherine's St., W • Montreal, Quebec

(Continued from page 112)

c/o owner, regional engr. Gordon S. Adamson, 906 Yonge St., Toronto, Ont., archt. Awarded Feb. 7.

M. O. Robinson Constr. Co., 2043 Avenue Road, Toronto, Ont., Owner Builds, $320,000, five 2 story brick APARTMENT bldgs., Cliffside Dr. near Norse Point, TORONTO, ONT.

LATIN AMERICA

BIDS ASKED—HEAVY CONSTRUCTION

Guatemala, Guatemala City—BIDS ASKED—Glenn McCarthy, Shell Bldg., Houston, Tex., U.S.A., TV station, $500,000. CD 12/19.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

Egypt—Bids Asked—Hydro-Electric Power Dpt., Comm. Ministry P. Wks., Cairo, Egypt, erection and maintenance of auxiliary travelling cranes and hoist blocks for Hydro-Electric Power Station at Aswan Dam. Kennedy & Donkin, 12 Caxton St., London, S. W. 1, consult. engrs. CD 11/16/50.

Proposed Projects

WATER SUPPLY

Calif., Fairfield—City, City Hall, $240,000 bond election Apr. 9, 2 m.g. reservoir, pumping stations and mains.

▲ Ill., East Moline—City, Arnold Neihaus, clk., water filtration plant, $1,000,000. Beling Engineering Consultants, 307 16 St., Moline, consult. engrs. CD 1/28

La., Thibodaux—City, bond election March 18, addns to combined WW and electric plant, $450,000. CD 10/18.

▲ Neb., Omaha—Metropolitan Utilities Dist., 18 and Harney Sts., water booster station, 34 and Pacific Sts. $250,000; construct reservoir, site and equip., $1,000,000. G. G. Holdrege, c/o owner, ch. engr. CD 11/17/43.

Tex., Galveston—City, Water Works Dpt., c/o M. McKeel, comr., Galveston, water main between Fairwood Booster Station at Hitchcock to Galveston Bay, $550,000.

Wis., Waukesha—Water Utility Comm., 132 North St., well, pumps, reservoir, $200,000 A. P. Kuranz, c/c owner, engr.

SEWERS, WASTE DISPOSAL

Calif., Los Gatos—City, City Hall, $150,000 bond election Apr. 8, storm drainage system. Emmett Brady city engr.

Ill., Lincoln—City, sewerage sys., $900,000. Crawford-Murphy & Tilly, 400 E. Adams St., Springfield, consult. engrs.

Ill., Normal—Town, storm sewerage sys. extensions, imprvs. $100,000. J. J. Woltman, Unity Bldg., Bloomington, Ind., consult. engr. CD 12/13.

Me., Lewiston—Stein & Co., Inc., Julius Stein, treas., Avon St., incinerator, $200,000.

Mass., New Bedford—City, Dpt. P. Wks., City Hall, sewage pumping plant, Howland St. $150,000.

Mo., Maryville—City, sewer mains in north and east sections of city, $103,519; lift station, $11,242; sewage purification plant, $140,949; sewage plant in south-western section, $16,495; sewer main to same, $13,907. J. W. Shirles & Co., 505 Reliance Bldg., Kansas City, Mo., consult. engrs. CD 2/14.

Nev., Elko—City, City Hall, voted $275,000 bonds, sewage disposal plant, Brown & Caldwell, 233 Sansome St., San Francisco, Calif., consult. engrs.

S. D., Madison—City, Madison, sewage plant, $200,000.

R. I., Pawtucket—City, City Hall, incinerator, $500,000.

▲ Tenn., Knoxville—City, City Hall, sewage treatment plant, $5,500,000. Greeley & Hansen, 220 S. State St., Chicago 4, Ill., consult. engrs. CD 12/21.

Tex., Weatherford—City, c/o M. Wright, mayor, Weatherford, voted bonds Feb. 12, sewerage sys. and disposal plant, $440,000. Joe J. Rady, 811 Insurance Bldg., Fort Worth, consult. engr.

STREETS AND ROADS

† IDAHO—Bureau P. Rds., Dpt. Commerce, Boise.

Blaine Co.—Galena Summit Rd., U. S. Hy. 93, $140,000;

Boundary Co.—U. S. Hy. 2, Bonners Ferry to Montana Border, $300,000.

Fremont Co.—imprv. Yellowstone Hy., Ashton to Jack's Inn., $450,000.

Minn., Duluth—City, C. D. Jeronimus, clk., street reconstr., Arrowhead Rd. from Woodland to Carver Aves., $61,340; Woodland Ave. from 4 St. to Allen Ave., $73,181; Michigan St. from 17 Ave. west to 22 Ave. west, $58,126. A. W. Tews, city engr.

Mo., St. Louis—City, Frank J. McDevitt, pres. Bd. P. Serv., 304 City Hall, 12 and Market Sts., Zone 3, imprv. Jamieson Ave. from Pernod Ave. to Arsenal St. $300,000. Guy Brown, 325 City Hall, Zone 3, city engr. CD 8/10/44.

Neb., Omaha—Douglas Co., Omaha, road paving under Schroeder Law, $212,000. Wm. Green, co. engr.

Neb., Omaha—Douglas Co., Omaha, county road grading under Schroder Law. $132,000. Wm. Green, Omaha, co. engr.

SOUTH CAROLINA—State Hy. Dpt., Columbia,

York Co.—32 mi. road imprvs. $320,000.

AIRPORTS

▲ **Mo., St. Louis**—APRON AREA—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, 14 in. rein.-con. apron area adjacent to proposed admin. bldg. and adjacent to Natural Bridge and airport roads, $1,000,000; furnishing, installing taxiway marker lights, $169,000 at Lambert-St. Louis Municipal Airport, St. Louis Co. CD 1/12/44.

Tenn., Chattanooga—ADMINISTRATION—City, City Hall, plans by Bianculli, Palm & Purnell, 501 Cherry St., administration bldg. addns. at Lovell Field. $320,000.

Tex., Brownsville—AIRPORT—City, International Airport imprvs., rebuilding runway, flexible base, b. conc. seal coats and some rehabilitation. $100,000. Ruff & Settles, c/o Pan-American Bldg., consult. engrs. CD 4/21/49.

▲† **Tex., Kelly Air Force Base**—AIR BASE IMPRVS.—U. S. Govt., c/o Maj. G. E. Cole, Asst. Air Installations Officer, Kelly Air Force Base, San Antonio, replacing 55,200 sq. yd. old concrete aprons with 18 in. steel rein.-con., $750,000; 3 mi. 9 ft. perimeter fence, $200,000; storage or warehousing, $100,000; general repair shop, $90,000; road rehabilitation, $75,000; Hangar No. 1, $150,000; Hangar No. 2, $250,000; Hangar No. 3, $375,000.

▲† **Tex., Mission**—AIR BASE BLDGS.—Dpt. of the Air Force, The Pentagon, Wash. 25, D. C., reactivation, remodeling, etc. to living quarters, $500,000; reconditioning, remodeling existing bldgs. relating to AFB operations, Approx. $350,000; water facilities, $60,000; reconditioning, exten. sewers and drainage, $65,000; reconditioning runway, taxiways, etc. $300,000, at Moore Field Air Force Base.

PUBLIC BUILDINGS

Calif., Glendora—SCHOOL FACILITIES—Glendoro Elementary School Dist., Wabash and Bennett Aves., plans by Wilber C. Harrison, 816 S. Figueroa St., Los Angeles, Zone 14, new school facilities. CD 10/5.

Calif., Long Beach—SCHOOL—Bd. Edu., 715 Locust Ave., plans by Palmer W. Power, 519 Ocean Center Bldg., Oliver Wendell Holmes School. $375,000. CD 11/18/48.

Calif., Merced—SCHOOL—Merced City School Dist., Merced, $600,000 bond election Apr. 22, addn. school facilities.

Calif., North Sacramento—SCHOOL—North Sacramento Elementary School Dist., 110 Dixieanne Ave., plans by Kobik & Fisher, 2203 13 St., Sacramento, Haginwood Elementary School addns., $350,000. CD 9/13/50.

Colo., Loveland—SCHOOL—School Dist. No. 2, B. F. Kitchen, supt., Larimer Co., Loveland, grade school, remodeling 2 grade schools and Junior-Senior High School bldg. $750,000.

Fla., Sarasota—HOSPITAL—City, bond election Apr. 1, hospital, $750,000. Hanebuth & Kannenberg, Sarasota, archts. CD 7/2/47.

Ill., Des Plaines—SCHOOL—School Dist. 62, Thacker Rd., plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 6, Junior High School, Algonquin Rd. and 4 Ave., $300,000; school at Algonquin Rd. and 4 Ave., $300,000.

Ill., Franklin Park—SCHOOL—School Dist. 84, 2836 Gustave St., plans by Howard T. Fisher & Assoc., 332 W. Washington St., Chicago, Zone 6, South Side Grade School. $300,000.

▲ **Ill., Oak Park**—SCHOOLS—School Dist. 97, Oak Park, surveys by Perkins & Will, 309 Jackson Blvd., Chicago, 6, Ill., Hatch Elementary School addn., $300,000; Holmes Elementary School addn., $300,000; Beye Emerson Elementary School addn., $300,000; Lincoln Elementary School addn., $300,000; Whittier Elementary School. $300,000.

Ill., Oak Park—SCHOOL—School Dist. 97, 122 Forest Ave., plans by Perkins & Will, 309 Jackson Blvd., Chicago, Zone 6, Mann Elementary School addn., $300,000; Hawthorne Elementary School addn., $300,000.

Ill., Summit—HOUSING—Cook County Housing Auth., County Bldg., 35-unit housing, $420,000.

Ind., Hammond—SCHOOL—School City of Hammond, 5935 S. Hohman Ave., school, River Rd. at Columbia St. $600,000.

Kan., Lindsberg—SCHOOL—Bd. Educ., Lindsberg, voted bonds, high school, $981,000.

▲ **Mass., Danvers**—MEDICAL, etc.—State Dpt. Mental Health, 15 Ashburton Pl., Boston, plans by Appleton & Stearns, 53 State St., Boston, PM 18 medical and infirmary bldg., at State Hospital. $2,100,000. Allied Eng. Corp., 71 Proctor St., Roxbury, Mass., supervision of constr. CD 2/10/50.

Mass., Framingham—AUDITORIUM and GYMNASIUM—State, Dpt. Educ., 200 Newbury St., Boston, plans by John M. Gray Co., 175 High St., Boston, auditorium and gymnasium addn., State Teachers College. $475,000.

Mass., Holbrook—SCHOOL—Town, Supt. Schools, elementary school, $500,000. CD 3/16/51.

▲ **Mass., Worcester**—LIBRARY—City, City Hall, municipal library, $1,000,000. CD 9/1/43.

▲ **Mass., Worcester**—COURT HOUSE—County, Court House, 2 Main St., plans by Harold C. Knight, 11 Beacon St., Boston, County Court House annex, $3,000,000. CD 11/13/51.

Mich., Monroe—SCHOOL—City, Monroe, plans by Jensen & Keough, 15875 James Couzens, St., Detroit, 2 story, brick, concrete elementary school and Jefferson School addn. $350,000.

† **Miss., Grenada**—BUILDINGS—U. S. Eng., P. O. Box 1169 Mobile, 7, Ala., plans by Mallett & Assocs., 416½ E. Amite St., Jackson, rehabilitation of buildings at Camp McCain, Approx. $500,000.

▲ **Mo., Fort Leonard Wood**—KITCHEN REMODELING, etc.—U. S. Eng., 601 Davison Bldg., Kansas City 8, Mo., remodeling kitchens and mess halls, conversion 2 buildings, 29 new buildings. $3,000,000. CD 7/5.

Mo., Maryville—ARMORY and FIELD HOUSE—State, Bd. Regents, Jefferson City, armory and field house, Northwest Missouri State College. $200,000.

Mont., Bozeman—DORMITORY—Montana State Bd. Educ., Helena, plans by S. L. Berg, Helena, mens dormitory at Montana State College, $650,000. CD 7/12/46.

Neb., North Platte—HOSPITAL—Lincoln Co., North Platte, Memorial Hospital addn. $700,000.

N. H., Durham—STUDENT UNION—University of New Hampshire, Office President, Durham, plans by Dan Kiley, Cole Hill Rd., Franconia, and Prof. Ronald Gourley, assoc. archt, 1 Allen Pl., Boston, Mass., memorial student union, $750,000.

▲† **N. J., Fort Monmouth**—HOSPITAL, etc.—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., plans by Ziegler, Childs & Ziegler, 1721 Bergen Ave., Jersey City, 250-bed hospital, $2,440,000; post communications bldg., $640,000; guard house, $426,000; 4 warehouses, $1,810,000. CD 4/2.

N. Y., Great Neck—SCHOOL—Union Free School Dist. 7, Great Neck, plans by Perkins & Will, 309 Jackson Blvd. Chicago 6, Ill., 1 story bsmnt. school, Gilchrest Rd. and Grace Ave. $300,000. CD 6/15/50.

O., Fairborn—GYMNASIUM, etc.—Bd. Educ., North Central Ave., plans by Walker, Norwick & Assoc., archts.-engrs., 12 W. Monument St., Dayton, Zone 2, gymnasium and football stadium. $500,000. CD 6/26.

O., Youngstown—HOUSING—Youngstown Metropolitan Housing Auth., 976 W. Federal St., plans by Scheibel & Shaffer, 1301 Realty Bldg., 300 (of a 935-unit proj.) housing units. CD 6/22/50.

O., Sabina—SCHOOL—Sabina School Dist., Sabina, plans by Grunkemeyer & Sullivan & Assoc., 3717 Eastern St., Cincinnati, brick, concrete steel addn. and remodeling existing school. $300,000.

Tex., Amarillo—AUDITORIUM—City, City Hall, plans by W. C. Townes, 1208 S. 10 St., city auditorium remodeling, Approx. $300,000.

Tex., Beeville—AUDITORIUM, HIGH SCHOOL, etc.—Beeville Independent School Dist., Beeville, plans by Julian & White, Transit Tower Bldg., San Antonio, auditorium, $300,000; high school, $500,000; stadium, $150,000. CD 9/10/52.

Tex., Dallas—HIGH SCHOOL—Dallas Independent School Dist., 3700 Ross St., plans by Danna & Welch, Thomas Bldg., Northeast Junior High School, $675,000. CD 9/23/49.

▲ **Tex., Seguin**—SCHOOLS—Seguin Independent School Dist., Seguin, bond election Mar. 1, high school, $350,000, Julian & White, 2901 Frammit Tower, San Antonio, archts., 1721 convent Mary B. Erskine Junior School into Elementary School, $300,000; new Negro Elementary School, $325,000; remodeling Negro High School and some school addns., $300,000.

Tex., Snyder—HEALTH CENTER—City, City Hall, plans by Butler-Brasher Co., 412 Avenue M, Lubbock, 1 story, 30,000 sq. ft., brick health center, concrete frame, pier and beam fdn., etc. $350,000.

Wis., Medford—SCHOOL—Bd. Educ. Medford, plans by D. H. Schoepke, 1916½ Hall Ave., Marinette, high school addn. $350,000.

Wis., Viroqua—SCHOOL—Bd. Educ., Viroqua, plans by Weiler & Strang, 114 N. Carroll St., Madison, school. $300,000.

▲ **Utah, Salt Lake City**—HIGH SCHOOL—Bd. Educ., 440 E. First South St., plans by Young & Ehlers, Continental Bank Bldg., Senior High School. $3,500,000.

† **W. Va., Morgantown**—OFFICE, etc.—Bureau Mines, Dpt. Interior, Morgantown, plans by Tucker & Silling Masonic Temple, Charleston, office, laboratory and pilot plants, $2,600,000.

▲ **Que., Montreal**—SCHOOLS—Catholic School Comn., 117 W. Ste. Catherine St., plans by G. E. Le Borgne, c/o owner, school for Parish of St. Augustin of Canterbury on Proudhomme St. $300,000; school for Parish of St. Ignatius, $350,000; school Parish of St. Rita, $350,000.

Que., Montreal North—SCHOOL—Catholic School Comn., 117 St. Catherine St. W., plans by G. Le Borgne, c/o owner, school, St. Vital Parish St. Vital Blvd. near Mouselet St. Approx. $300,000.

COMMERCIAL BUILDINGS

▲ **Calif., Whittier**—SHOPPING CENTER—Benjamin Clayton, Security Bldg., Pasadena, plans by Harold S. Johnson, 606 S. Hill St., Los Angeles, 67 store shopping center, $3,500,000.

Colo., Denver—THEATER—Fox-Intermountain Theaters, Inc., 514 16 St., 1 story motion picture theater, 16 St. and Cleveland Pl., $600,000. Walter H. Simon, 1922 E. 18 Ave., consult. engr. and archt.

▲ **Ia., Davenport**—STORE—Sears, Roebuck & Co., W. Arthington and S. Homan Sts., Chicago, Ill., department store. $3,000,000. CD 9/28/5.

▲ **Ia., Dubuque**—SEMINARY—St. Bernard Seminary, Dubuque, seminary buildings. $1,500,000.

Kan., Topeka—HOUSING—Blosser Building Co., Crawford Bldg., 350 prefabricated housing unit. $325,000.

Me., Millinocket—HOSPITAL—Owner, c/o Supt. Robt. Hume, Great Northern Paper Co., Millinocket, hospital. $500,000.

Mass., Cambridge—Y.W.C.A. BUILDING—Young Women's Christian Assn., Executive Office, 140 Clarendon St., Boston, plans by Anderson & Beckwith, 11 Beacon St., Boston, Y.W.C.A. building, incl. swimming pool, $350,000-$500,000.

Mass., Framingham—MOTOR INN—Clifford A. McBride, pres. General Products Co., Central Falls, R. I., plans by Dwight Seabury Co., 188 Main St., Pawtucket, R. I., motor inn, Rte. 9 adjacent to Framingham Country Club. $500,000.

Mich., Detroit—OFFICE—National Bank of Detroit, 660 Woodward St., plans by Roy W. Akitt 1446 National Bank Bldg., Detroit, Mich., 6 story brick, steel office bldg. addn., Cass Avenue. $900,000.

▲ **Mich., Oak Park**—SHOPPING CENTER—J. L. Hudson Co., 1206 Woodward St., Detroit, plans by Victor D. Gruen, 1905 Industrial Bldg., Detroit, 450,000 sq. ft., brick shopping center, incl. department store, parking for 6000 cars, etc. Northland Center 8 mile, 9-mile Greenfield and Southfield Rds. $10,000,000-$15,000,000.

Mo., Cape Girardeau—SCHOOL—Notre Dame of Dc Cap Parish Cape Girardeau, plans by A. F. Arthur Stauder, 3608 S. Grand Blvd., St. Louis, Zone 18, brick, concrete school. $400,000.

Mo., Gardenville (St. Louis 23, P.O.)—SCHOOL—St. George's Catholic Parish, Very Rev. Msgr. Mark S. Ebner, pastor, 4980 Heege Rd., St. Louis, Zone 23, plans by A. F. and Arthur Stauder, 3608 S. Grand Blvd., St. Louis, Zone 18, 2 story, ground floor, 73x138 ft. and 54x110 ft. brick, concrete parochial school and sisters convent. $300,000.

▲ **Mo., Grandview**—HOUSING—Ray M. Klapmeyer, Martin City, Kansas City, Mo., housing and shopping center, $1,500,000.

Mo., Ste. Genevieve—SCHOOL—Ste. Genevieve Catholic Parish, St. Genevieve, plans by A. F. & Arthur Stauder, 3608 S. Grand Blvd., St. Louis, Zone 18, brick, concrete high school. $300,000.

Mo., St. Louis—HOSPITAL—Missouri Baptist Hospital, 919 N. Taylor Ave., Zone 8, plans by Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., Zone 1, 4 story top addn. to present 4 story, bsmnt., 46x139 ft. and 46x58 ft., brick, concrete hospital, 4514 McMillan Ave.

Mont., Anaconda—HOSPITAL—Sisters of Charity, Leavenworth, Kan., plans by E. F. Moyle, O'Rourke Estate Bldg., Butte, St. Ann's Hospital. $600,000.

N. H., Concord—TELEPHONE—New England Telephone & Telegraph Co., E. N. Roemer, ch. engr., 185 Franklin St., Boston, Mass., plans by Carl Peterson, 1006 Elm St., Manchester, telephone bldg. $300,000.

N. H., Nashua—DEPARTMENT STORE—Bargain Outlet, Inc., 80 Main St., rebuild department store. $300,000.

N. Y., Jamaica—AUDITORIUM, etc.—Mary Immaculate Hospital, c/o William Boegel, archt., 12 E. 48 St., New York, Zone 17, 3 story auditorium, garage and laundry, 153 St. and 88 Ave. $425,000.

N. Y., New York—APARTMENT—Repar Realty Corp., 340 W. 48 St., Zone 19, plans by Boak & Raad, 175 Fifth Ave., Zone 10, 14 story apartment on west side of Broadway between 9 and 10 Sts. at 711-785 Broadway, $870,000. Victor Mayper, 110 W. 40 St., Zone 18, consult. engr.

N. C., Asheville—DORMITORY—Women's Division of Christian Service of The Board of Missions, c/o A. Eugene Cellar, archt., Graham Bldg., Jacksonville, Fla., dormitory for Allen High School. Approx. $300,000.

▲ **O., Mansfield**—SHOPPING CENTER—Lemley & Weish, Mansfield, shopping center at western edge of city, 20 stores and theater, on 20-acre site on U. S. Rte. 30 South, parking for 1,350 cars. $2,000,000.

Tex., Amarillo—CHURCH—Avondale Baptist Church, c/o Raymond Bowlin, Amarillo, church. $350,000.

▲ **Tex., Fort Worth**—SHOPPING CENTERS—Owners, c/o Howard Patterson, Dan Waggoner Bldg. shopping centers, Unit 1, $750,000; Unit 2, $500,000; Unit 3, $750,000.

Tex., Mineral—ORPHANS HOME—South Texas Childrens Home, c/o Rev. J. M. Lunsford, supt., Pettus, orphans home, on 637-acre site near here. $300,000.

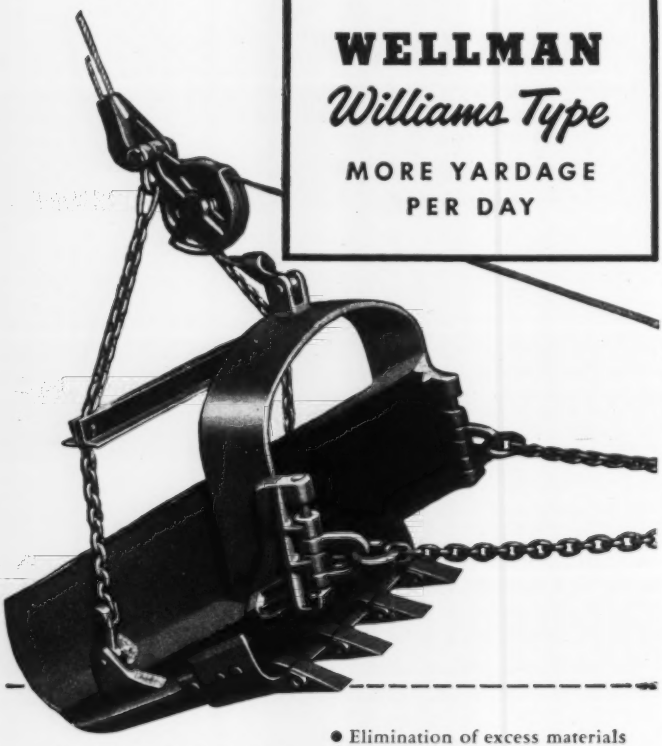
Va., Falls Church—CHURCH—Falls Church Presbyterian Church, c/o K. D. Hamaker archt., 3210 N. Ohio St., Arlington, church addns. $350,000.

▲ **Wis., Green Bay**—HOSPITAL—Bellin Memorial Hospital, 742 S. Webster Ave., plans by Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., 4 story, bsmnt. hospital addn. $1,000,000. CD 5/8/47.

▲ **Wis., Milwaukee**—HOSPITAL—Franciscan Sisters, 1845 N. 4 St., plans by Ralph Ranft, 3946 Keokuk St., St. Louis, Mo., 8 story St. Michaels Hospital, $5,000,000. M. F. Pfaller, 8525 Ravenswood Circle, Wauwatosa, assoc. archt. CD 6/2/50.

▲ **Ont., Oakville**—SHOPPING CENTER—Principal Investments Ltd., 67 Richmond St. W., Toronto, shopping center with stores parking space. $1,000,000.

WELLMAN
Williams Type
MORE YARDAGE PER DAY



● Elimination of excess materials and careful weight distribution permit rapid, rhythmic operation of Wellman Dragline Buckets. Operators can cover a wider digging radius with this streamlined bucket.

Built of special alloy steel, using strong welded design, Wellman buckets provide strength and stamina for long-term economy. Perforated designs also available. You'll do better with Wellman.

Want Facts?
Write for free descriptive bulletins.

THE WELLMAN ENGINEERING COMPANY
7000 Central Avenue • Cleveland 4, Ohio

DRAGLINE, CLAMSHELL, CUSTOM-BUILT BUCKETS • STONE AND WOOD GRABS

from
•
•
OFFICE MANAGER
•
to
•
GENERAL MANAGER
•
•

yes, that is the calibre of the personnel available to your organization through the Classified Advertising pages of ENGINEERING NEWS-RECORD.

Classified Advertising Division

ENGINEERING NEWS-RECORD
330 W. 42nd St. New York 18, N. Y.

CONTRACTORS' OFFICE TRAILER
Models 24'—27'—31'—35'
Price $3100. to $3500.

Equip your job with a modern designed field office trailer

Natural beautiful birch finish—drafting table—built in letter files—drawers—cabinets—closet—oil stove heated—insulated—electric lights—wired for telephones—2 rooms.

TRAILER VILLAGE SALES, INC.
8642 Pulaski Highway, Baltimore 21, Md.
Phone: Essex 2233

INDUSTRIAL BUILDINGS

▲ **Calif., Redwood City**—PLANT—Stecher-Traung Lithograph Corp., Leslie Jackson, chn. Bd., c/o Redwood City Chamber of Commerce, Redwood City, lithographing plant, Gennochio Property on Marshall St., extension between Walnut and Maple Sts. $3,500,000.

▲ **Ill., Skokie**—FACTORY—Felt Products Co., 1508 W. Carroll St., 1 story, 140,000 sq. ft. factory, McCormick Blvd. near Howard Ave. $1,250,000.

Ill., Springfield—PLANT—Massey-Harris Farm Implement Co., 1721 Packard Ave., Racine, Wis., 70,000 sq. ft. farm implement distribution and service plant, Route 66. $500,000.

Mich., Muskegon—CASTINGS PLANT—Lakey Foundry & Machine Co., John O. Ostergren, pres., Muskegon, steel castings plant.

Minn., Hopkins—FACTORY—Houghton Vik-Syn Co., c/o Magney, Tusler & Setter, archts., 202 Foshay Tower, Minneapolis, factory, County Road 18. $120,000.

Mo., Hermann—PLANT—Ritepoint Co., 4350 S. Kingshighway St. Louis, 9, Mo., will not construct 1 story, 152x222 ft. (bsmnt. 152x182 ft.) tile, concrete pen and pencil mfg. plant. Project abandoned. CD 9/10.

Mo., Louisiana—GRAIN STORAGE ELEVATOR—River-Rail Grain Co., Louisiana, 100,000 bu. elevator for grain storage, barge terminal, etc. on river front about 1 mile south of here.

▲ **N. J., Springfield**—FACTORY—Hanowia Chemical & Mfg. Co., 100 Chestnut St., Newark, plans by Eppie & Seaman, 901 Broad St., Newark, 150,000 sq. ft. factory. $1,650,000.

N. Y., Long Island City—FACTORY—Albro Steel Co., 47-29 Van Dam St., plans by C. Abrahams, 27-01 41 Ave. 1 story, 99x182 ft. factory, on west side of Review Ave. between 35 St. and Greenpoint Ave. $110,000.

▲ **O., Youngstown**—PLANT—Ohio Manganese, Inc., c/o M. W. Joyce, 37 Wilma Ave., plant to extract manganese from open hearth slag. $2,250,000.

▲ **Okla., Cushing**—REFINERY—Midland Co-operative Wholesale, Cushing, expansion and modernization of refinery, to equal 4,000 bbl. boost, and installing catalytic cracking unit. $2,000,000.

▲ **Tex., Amherst**—GENERATING UNIT—Southwestern Public Service Co., 3 and Polk St., Amarillo, structural steel, roman brick walls, etc. generating unit. $2,500,000.

▲ **Tex., Seadrift and Long Mott**—CHEMICAL PLANT—Carbide & Carbon Chemicals Div. of Union Carbide & Carbon Corp., Texas City, chemical plant, 2,800-acre tract. $73,000,000.

▲ **Wash., Vancouver** — FACTORY — Carborundum Co., Vancouver, factory addn., incl. equipment. $3,319,000.

Ont., Toronto—WAREHOUSE, etc.—Boyce Boiler & Machine Co., Jarvis & Esplanade Sts., plans by N. A. Armstrong, 19 Melinda St., 2 story, 90x130 ft., steel masonry, rein.-con. warehouse and machine shop. $120,000.

Que., Sherbrooke—WAREHOUSE—J. S. Mitchell Co., Ltd., 80 Wellington St. N., Sherbrooke, warehouse.

Sask., Regina—SERVICE CENTER—White Motor Co. of Canada Ltd., Regina, concrete, steel truck service centre, $175,000.

UNCLASSIFIED

▲ **Conn., Hartford**—STADIUM—City, 550 Main St., Hartford, stadium. $1,500,000.

Illinois—RURAL DISTRIBUTION LINES—Wayne-White Counties Electric Co-operative, Fairfield, 84 mi. rural distr. line, headquarters, facilities and system imprvs., Wayne Co. $460,000.

Iowa—RURAL DISTRIBUTION LINES—Cornhusker Rural Pub. Power Dist., Columbus, Neb., rural distr. lines and sys. imprvs., Platte Co. $600,000. Raymond H. Reed & Co., Columbus, Neb., consult. engrs.

Mo., St. Louis—COMFORT STATIONS—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 3, 12 comfort stations in city parks. $120,000. CD 8/16/44.

Montana—RURAL DISTRIBUTION LINES—Lower Yellowstone Rural Electric Assn., Sidney, 209 mi. distr. lines in Brockton, Richland and Dawson Counties, $240,000. J. A. Fussell, Jr., Box 1531, Havre, consult. engr. CD 7/12.

Neb., Omaha—TRIFFIC LIGHTS—City, City Hall, $200,000 bond election Apr. 1, new traffic lights, E. W. Woodbridge, City engr.

O., Elyria—SAND HANDLING SYSTEM—Elyria Foundry Div. of Industrial Brownhoist Corp., Filbert St., sand handling sys. to eliminate dust areas. $400,000.

▲ **Texas**—RURAL DISTRIBUTION LINES—Brazos River Transmission Electric Co-operative, Waco, 45 mi. 69 kw transmission line and related sub-stations, and complete previously approved transmission constr. McLennan, Burleson, Brazos, and Hood Counties. $1,250,000. CD 3/14/46.

Texas—CRUDE OIL PIPE LINE—Service Pipe Line Co., Fair Bldg., Fort Worth, 32 mi. addnl. 10 in. crude oil pipe line starting near Clairemont and going toward Stonewall Co. line. $465,000.

▲ **Utah**—GAS TRANSMISSION LINE—Utah Natural Gas Co., Greenriver, gas-transmission line between Salt Lake City and eastern central Utah Fields. $32,000,000.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
March 11, Massachusetts

BUILDINGS

LOW BIDS AND CONTRACTS

R. O. Porter, 263 Washington St., Newton, Mass. CA $840,000. 70 RESIDENCES, Northgate St., WELLESLEY, MASS. Orville Estate Trust, 588 Washington St., Wellesley, Mass.

▲ **Wexler Constr. Co.,** 2 Elm St., Brookline, Mass. CA $2,748,425. RI-3-2 HOUSING, Lathrop Property, WOONSOCKET, R. I. Woonsocket Housing Auth., 66 Morin Heights Blvd., Woonsocket, R. I. Bids Feb. 8, awarded Feb. 20. CD 2/15, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 11, April 1, New Jersey
STREETS AND ROADS
March 11, 13, New Jersey
March 12, New York March 21, Pennsylvania

▲† **N. J., Metuchen**—HARDSTANDINGS—B.A. About 3/27—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., hardstandings at Raritan Arsenal, $1,620,000. Plans deposit $20.

SOON LETS CONTRACT—BUILDINGS

▲ **Md., Essex**—DIAL CENTER—Chesapeake & Potomac Telephone Co., 320 St. Paul St., Baltimore, soon lets contract 1 story, part bsmnt., 95x144 ft., brick, rein.-con., steel Essex Dial Center, $1,222,000. Taylor & Fisher, 1012 N. Calvert St., Baltimore, archts. Frank N. Krease, 1504 Woodland Terrace, Phila., Pa., struct. engr. Moody & Hutchinson, 1420 Walnut St., Phila., Pa., mech. engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton.

J. Rich Steers, 17 Battery Pl., New York, N. Y., CA $2,058,093, sub-structure for Route 25 bridge over Hackensack River Jersey City-Kearny, Hudson Co. Bids Jan. 20, awarded Feb. 25. CD 2/7, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg. Harrisburg.

Charles C. Bissett, New Freeport, Pa., LB $145,623, build-up and wid'n. 11,457 ft. existing pavement with crushed aggregate base and bit. surf. L.R. 62094 (S1) 802 (S2), Washington Co.;

McCrady Constr. Co., 304 Ross St., Pittsburgh 19, Pa., LB $306,328, construct 7.489 ft. hy. crushed aggregate base with bit. surf. 28 ft. wide, L.R. 64235 (1), Westmoreland Co.;

J. Riley & A. R. Eddy, 278 W. Green St., Waynesburg, Pa., LB $99,976, wid'n. 8,142 ft. pavement with plain c. conc. base and bit. surf. new and existing pavement, T.R. 31, Washington Co.;

H. R. Miller Co., Inc., P.O. Box 1235, Lancaster, Pa., LB $376,869, construct 30,666 ft. crushed aggregate base with bit. surf. 18 ft. wide, build-up and one rein.-con. bridge, T.R. 249, Tioga Co.;

Allegheny Asphalt & Paving Co., 801 Bingham St., Pittsburgh 3, Pa., LB $176,469, bit. surf. 7,171 ft. existing pavement, 44 ft. wide, T.R. 88, Beaver Co.;

Frank Mashuda Co., Gibsonia, Pa., LB $1,632,647, construct 28,036 ft. divided highway with rein.-con. pavement 22 ft. wide on each side of divisor and rein.-con. bridge T.R. 19, Butler Co.;

rejected bids Feb. 21, wid'n. 61,616 ft. hy. with crushed aggregate base and bit. surf. T.R. 98-27, Crawford Co., LB $528,304; wid'n. 20,245 ft. roadway with crushed aggregate base and bit. surf. new and existing pavement T.R. 98, Erie Co., LB $213,566, Will re-advertise. Bids Feb. 21. CD 1/30.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2.

Nello L. Teer, Durham, N. C. LB $1,228,967, grading, drainage, surf. 1 lane of dual hy. 2.33 mi. Contr. B-578-B-415, Baltimore Co. Bids Feb. 19. CD 1/29.

▲† **F. H. Martell,** 1023 20 St. N. W., Wash., D. C., LB, $1,086,700, 500 men BARRACKS at Washington National Airport, WASH., D. C. U. S. Eng., First and Douglas Sts. N. W. Wash., 25, D. C. Bids Feb. 26. CD 1/25.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Merrick Shores Homes,** c/o Stanley Klein, archt., 89-91 161 St., Jamaica, N. Y., Owner Builds, $1,500,000 132 HOUSES on 40-acre track overlooking East Bay, MERRICK, N. Y.

▲ **John Klein,** 742 Valley Forge Ave., Trenton, N. J., Separate Contracts, $1,200,000, RESIDENTIAL DEVELOPMENT, TRENTON, N. J. W. W. Van Der Slute, 6 South Ave., Cranford, N. J., archt.

▲† **Blake Constr. Co., and Wm. T. Lyons Co.,** 110 W. 25 St., Baltimore, Md. CA $2,272,000. exten. MESS HALL, ANNAPOLIS, MD. Pub. Wks. Office, U. S. Naval Academy, Annapolis, Md. CD 2/5, under LB.

▲ **Henry A. Knott, Inc.,** 2107 N. Charles St., Baltimore, Md. LB $3,174,000, est. $3,000,000. 292 unit Claremont HOUSING, 36 buildings, two story, part bsmnt., brick, BALTIMORE, MD. Baltimore Housing Auth., 709 E. Eager St., Baltimore, Md. Bids Feb. 14. CD 1/17.

▲ **Beaston Constr. Co.,** 6802 Ludlow St., Upper Darby, Pa., Separate Contracts, $1,500,000, RESIDENTIAL DEVELOPMENT, 35 St., WILMINGTON, DEL. Morton E. Bleich, North American Bldg., Wilmington, Del., archt.

† **Piracci Constr. Co.,** 2552 Woodbrook Ave., Baltimore, Md. CA $618,589. brick, rein.-con., concrete, cinder block FIRE BOMB CLUSTER BLDG. No. 52-51, EDGEWOOD, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore Md. CD 1/22, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 12, Louisiana March 14, Kentucky
STREETS AND ROADS
March 14, Kentucky

BIDS ASKED—BUILDINGS

Fla., Cocoa—HOUSING—B.A. 3/18—Cocoa Housing Auth., Cocoa, housing Projects FLA 19-1 and FLA 19-2, $500,000. Extended date. CD 2/13.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Dixie Constr. Co.,** 747 Wheaton St., Savannah, Ga., CA, $1,379,000, refueling system at Hunter Air Force Base, Inv. 52-56, SAVANNAH, GA. U. S. Eng., Post Office Bldg., Savannah, Ga.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Libby Constr Co.,** 1401 K St. N. W., Wash., D. C., LB, $9,000,000, 800 HOUSING Units, ALEXANDRIA, VA. Alexandria Redevelopment & Housing Auth., Cameron Valley, Alexandria, Va. Edward S. Holland, 316 S. Washington St., Alexandria, Va., engr. Joseph Sanders, 121 S. Columbus St., Alexandria, Va., archt. CD 9/18.

▲ **Byck-Worrell Constr. Co.,** E. Bay St., Savannah, Ga., CA, $2,487,347, 400 unit HOUSING, Project S. C. 2-4, COLUMBIA, S. C. Columbia Housing Auth., Court House Office, Columbia, S. C. Bids Feb. 21. CD 2/26, under LB.

▲ **Batson-Cook Co.,** West Point, Ga., CA, $1,003,000. 144-unit HOUSING, Project Ala. 57-1, SYLACAUGA, ALA. Sylacauga Housing Auth., Sylacauga, Ala. Bids Feb. 21. CD 2/26, under LB.

▲ **G. E. Bass & Co.,** P.O. Box 1048, Jackson, Miss. CA $1,164,033. 174 HOUSING units, Proj. Miss 2-3, LAUREL, MISS. Laurel Housing Auth., Laurel, Miss. Bids Feb. 26. CD 2/6.

Dunn Constr. Co., 2508 3 Ave. N., Birmingham, Ala. LB $7,025,000. FACTORY for Textron, Inc., MERIDIAN, MISS. City, Meridian, Miss. Bids Feb. 21. CD 1/29.

▲† **Penker Constr. Co.,** 1030 Summer St., Cincinnati, O. CA $1,922,450. addnl. AMMUNITION STORAGE, (100 igloos) Blue Grass Ordnance Depot, LEXINGTON, KY. U. S. Eng., 830 W. Broadway, Louisville, 3, Ky. Bids Feb. 20, awarded Feb. 20. CD 2/26, under LB.

▲ **Beers Constr. Co.,** 70 Ellis St. N.E., Atlanta, Ga. CA $3,466,000. 480 HOUSING units, NASHVILLE, TENN. Nashville Housing Auth., 700 S. 6 St., Nashville, Tenn. Bids Feb. 26. CD 1/29.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 11, Ohio
STREETS AND ROADS
March 11, Ohio

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **WISCONSIN**—State Hy. Comn., Madison.

Payne & Dolan of Wisconsin, Inc., 735 N. Water St., Milwaukee, Wis., LB, $150,383, Contr. 1, b. conc. 6.62 mi. C.T.H. "E"-S.T.H. 42 Road, S.T. Hy. 31, Proj. T 0841 (1), Racine Co.; LB, $174,686, Contr. 1, b. conc. 5 mi. The Wales-Waukesha Rd., U.S. Hy. 18, Proj. T 016-1 (13), Waukesha Co.; LB $99,699, Contr. 1, b. conc. 5.61 mi. The C.T.H.-"Y"-East County Line Rd., S.T. Hy. 15, Proj. T 015-2(6) Waukesha Co.;

Rassmussen Constr. Co., Oshkosh, Wis., LB, $289,039 Contr. 1, b. conc. 10.07 mi. The Split [illegible]ck-Wittenberg Rd., U.S. Hy. 45, Proj. T 051-1 [illegible] Shawano Co.; LB, $469,705, Contr. 1, b. conc. [illegible].8 mi. The Wittenberg-Aniwa Rd., U.S. Hy. 45, Proj. T 051-1 (8), Shawano Co.;

Mathy & Thornton Constr. Co., 508 Hoeschler Bldg., La Crosse, Wis., LB, $242,784, Contr. 1 and 2, single aggregate bit. 14.002 mi. The South County-Line-Black River Falls and Cataract-North County Line Rds., S.T. Hy. 27, Proj. F 0701 (5) and F 07-1 (12), Jackson and Monroe Counties; LB $82,167, Contr. 3, single aggregate bit. 3.61 mi. The Sparta-Camp McCoy Rd., S.T. Hy. 21, Proj. 0319 (4), Monroe Co.;

Brencan Bros., Lansing, Ia., LB, $272,602, Contr. 1, grading, draining, structures 0.662 mi. The La Crosse-Holmen Rd., U.S. Hy. 53, Proj. U 510 (6), La Crosse Co.;

J. L. Sullivan & Sons, Wisconsin Rapids, Wis., LB $192,997, Contr. 1, c. conc. 0.703 mi. Van Dyne Rd. and West Scott St. (city of Fond du Lac) City Street, Proj. U 4706 (2) Fond du Lac Co.;

Bushman Constr. Co., 4638 J. C. Nichols Parkway, Kansas City, Mo., LB, $604,181, Contr. 1, c. conc. 7.497 mi. U.S.H. 51-Emerald Grove Rd., U.S. Hy. 14, Proj. F 014 (2 (13), Rock Co.;

Rock Road Constr. Co., 5711 Winnequah Rd., Madison, Wis., LB, $222,765, Contr. 3, b. conc. 11.76 mi. The Evansville-S.T.H. 194 Rd., U.S. Hy. 14, Proj. T 014-2(10), Rock Co.;

S. J. Groves & Sons Co., Wesley Temple Bldg., Minneapolis, Minn., LB, $219,354, Contr. 1, b. conc. 10.48 mi. The Marathon-Wausau and Junction S.T.H. 20 and U.S.H. 51, Schofield Rds., S.T.H. 29 and U.S. Hy. 51, Proj. T 020-2(4) and T 05-3 (2), Marathon Co.;

Rein & Schultz, Inc., 119 E. Washington Ave., Madison, Wis., LB, $215,332, Contr. 1, single aggregate bit. 11.384 mi. The Rhinelander-Laona Rd., Crandon-Laona Rd., U.S. Hy. 8, Proj. F 021-3(16), Forest Co;

W. J. Kennedy & Son, Footville, Wis., LB, $170,240 Contr. 2, grav. or crushed stone base course 11.76 mi. The Evansville-S.T.H. 194 Rd., U.S. Hy. 14, Proj. T 014-2(10), Rock Co.;

Dixon Constr. Co., Albany, Wis., LB, $399,385, Contr. 1, grading, draining, ballast 13.61 mi. The Cassville-Bloomington Rd., S.T. Hy. 133, Proj. S 0200 (1), Grant Co.;

Koch Constr. Co. and Al. J. Koch, 239 W. Center St., Milwaukee, Wis., LB, $672,045, Contr. 1, 9.789 mi. Old U.S.H. 41-North County Line Rd., S.T.H. 23 North County Line Sect.-U.S. Hy. 41, Proj. F03-1 (41) Fond du Lac Co.;

Schutte Builders, Manitowoc, Wis., LB $142,421, Contr. 1, c. conc. 0.479 mi. West Scott Street (City of Fond du Lac), U.S.H. 45 U-4706 (1), Fond du Lac Co. Bids Feb. 19. CD 1/30.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **C. W. Zimmerman, Inc.,** 2642 St. Charles St., Dayton, O. Owner Builds. $1,500,000. 113 brick HOMES, on 25 acre tract on north side of Stroop Rd. between Shroyer and Marshall Rds., DAYTON, O.

▲ **Major Corp.,** c/o Inland Steel Co., East Chicago, Ind., CA, $1,500,000, 50 RESIDENCES, incl. paving, landscaping and utilities, EAST CHICAGO, IND. Inland Steel Co., 38 S. Dearborn St., Chicago, 3, Ill. Awarded Feb. 19. CD 11/16.

▲ **Paul E. Schleicher & Sons,** 545 Broadway, Gary, Ind. CA $2,309,349, 272 unit, brick, Dorie Miller HOUSING, GARY, IND. Gary Housing Auth., 400 Progress St., Gary, Ind. Bids Feb. 11, awarded Feb. 20. CD 2/20, under LB.

▲ **Ellington Miller Co.,** 25 E. Jackson Blvd., Chicago, 4, Ill., CA, $3,500,000, YARD improvements, incl. yard office car repair bldg., 7 tracks, hump imprvs., car retarders electric switch systems, BLUE ISLAND, ILL. Indiana Harbor Belt R.R. Co., E. A. Dougherty, ch. engr. La Salle Street Station, Chicago, 5, Ill. Awarded Feb. 18.

▲ **Sumner S. Sollitt Constr. Co.,** 333 N. Michigan Ave., Chicago, 1, Ill. LB, $2,263,000, general contract 6 story, 2,400,000 cu. ft., brick, steel, concrete DENTISTRY, MEDICAL PHARMACY BLDG., CHICAGO, ILL. University of Illinois, Wood and Polk Sts., Chicago, Ill. Bids Feb. 19. CD 1/16.

▲ **Cranbrook Development Co.,** Louis Savage, 1216 Penobscot Bldg., Detroit, Mich. Owner Builds. $2,000,000. Mercier Farm HOUSING DEVELOPMENT, 155 Single brick houses, on 334 acre site, BIRMINGHAM, MICH. CD 1/29.

▲ **Reid-Paterson, Inc.,** 233 Briggs Bldg., Birmingham, Mich. Owner Builds. $4,000,000. Adams Village SHOPPING CENTER, incl. 133 two story, bsmnt., brick housing duplexes, streets, sewers, water mains, etc., BIRMINGHAM, MICH. Beneicke & Lorenz, 15826 James Couzens St., Detroit, Mich., archts.

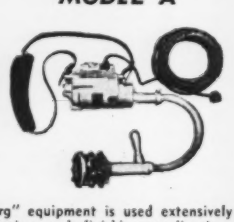
▲ **Practical Builders, Inc.,** 1340 W. Seven Mile Rd., Detroit, Mich. Owner Builds. $5,000,000. 350 multiple unit HOUSING DEVELOPMENT, 450 single houses, Vincent Park Sect., Oak Park Blvd., Condon, Moritz, Jerome and Scotia Sts., OAK PARK, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 18, 19, Texas
STREETS AND ROADS
March 18, 19, Texas March 21, Montana

"BERG"

CONCRETE SURFACER MODEL A



"Berg" equipment is used extensively for surfacing and finishing applications on concrete construction.

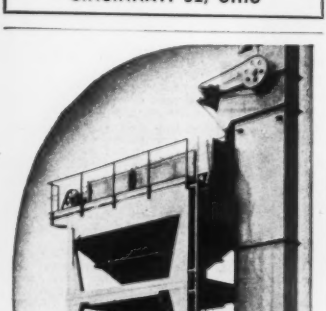
The many "BERG" Models available, permit exact selection for your particular application.

The distinctive "BERG" features give you the kind of results that are realized in better quality work, combined with lower costs.

"BERG" Heads and Attachments are interchangeable, thereby providing adaptability for vibrating, wire brushing, sanding and polishing applications.

THE CONCRETE SURFACING MACHINERY CO.

4667 SPRING GROVE AVE.
CINCINNATI 32, OHIO



MONEY-SAVING PAVING PLANTS

The most rugged plants in America and the cheapest to own and operate. Less maintenance. Simplest design. Seven sizes. Unit built. Prompt delivery.

Write for catalog.

STANDARD STEEL CORPORATION

5093 Boyle Ave., Los Angeles 58, Calif.
123-93 Newbury St., Boston 16, Mass.

▲† **Tex., Mineral Wells**—MESS and ADMINISTRATION BLDGS.—B.A. 3/18—U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth. 3 mess and administration bldgs., 500-man capacity, brick exterior constr. Inv. No. 41-443-52-23. $1,100,000. Extended date. CD 1/21.

† **MINNESOTA**—B.A. 3/21—Dpt. Commerce, Bureau P. Rds., 214 Glove Bldg., Fourth and Cedar Sts., St. Paul,
steel I-beam bridge 0.051 mi. over arm of Garden Lake, near Winton, Minnesota Forest Hy. Proj. 6-B, Superior National Forest. H. J. Spelman, div. engr.; adv. ENR 3/6.

† **Okla., Oklahoma City**—RAILROADS, etc.—B.A. 3/27—U. S. Eng., Box 60, Tulsa, Zone 2, rebuild railroads and existing roadways at Tinker Air Force Base, $600,000.

BIDS ASKED—BUILDINGS

N. D., Grand Forks—MEDICAL SCIENCE BLDG.—B.A. 3/14—State Bd. Higher Educ., Bismarck, medical science bldg. addn. at University of North Dakota, $600,000. Extended date. Wells & Denbrook, 425 Kittson Ave., archts. CD 1/23.

Tex., Lubbock—CLINIC—B.A. 3/19—Krueger, Hutchison & Overton, 1301 Broadway, 3 story, 82x252 ft. brick, stone, tile clinic, $700,000. Bid date changed. Haynes & Kirby, 19 and Dixie Dr., archts. CD 2/14.

▲ **Tex., Dallas**—HOSPITAL, etc.—B.A. 4/3—City of Dallas, City Hall, Main and Harwood Sts., and Dallas Co., Court House, Dallas, 550-bed, masonry city-county hospital and clinic. $7,000,000. De Witt & Swank, 2025 Cedar Springs Rd., archts. Bids 1/10 rejected. LB, $7,749,000. CD 1/16, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Farnsworth & Chambers Co., Inc.**, 3018 Leeland St., Houston, Tex. CA $6,926,483, est. $7,796,805, 10,000 ft. concrete runway 200 ft. wide, using 16 in. thick concrete paving, appurtenances, Municipal Airport, TULSA, OKLA. Douglas Aircraft Co., 3000 Ocean Park Blvd., Santa Monica, Calif. Bids Jan. 15, awarded Feb. 18. CD 1/22, under LB.

▲ **TEXAS**—State Hy. Comn., State Highway Bldg., Austin,
Cooper & Woodruff, 222 Mays Bldg., Amarillo, Tex., LB $78,191, est. $60,000, grading, structures, base and surf. 7.807 mi. Hy. FM 1768, Young Co.;
M. E. Ruby, San Marcos and **H. & H. Constr. Co.**, Corsicana, Tex., LB $88,554, est. $75,000, flexible base, b. conc. 1.065 mi. Hy. U. S. 290, Proj. F-236 (8), Washington Co.;
C. R. Heidelberg, 320 Jackson St., Jacksonville, Tex., LB $77,813, est. $60,000, grading, structures, base, surf. 5.575 mi. Hy. FM 1643, Proj. S 1824 (1), Polk Co.;
Brown & Root, Inc., P.O. Box 3, Houston, Tex., LB $124,723, est. $100,000, grading, structures, base, surf. 9.521 mi. Hy. FM 1728, Proj. S 1661 (1), Matagorda Co.;
Farnsworth & Chambers, Co., P.O. Box 74, Houston, Tex., LB $237,501, est. $180,000, grading, structures, 12.9 mi. Hy. SH 105, Proj. S 925 (1), Hardin Co.;
Ernest Loyd, P.O. Box 1120, Fort Worth, Tex., LB $163,309, est. $200,000, flexible base, 3 course surf. tr. 15.363 mi. Hy. US 62 and SH 51, Proj. C 228-1-14, Terry and Gaines Counties; LB $87,426, est. $60,000, grading, structures, base, surf. 11.08 mi. Hy. FM 1210, Proj. S 1702 (1), Dawson Co.;
Uvalde Constr. Co., P. O. Box 3027, Dallas 2, Tex., LB $281,860, est. $200,000, c. conc. 3.511 mi. Hy. Loop 12, Proj. F 1089 (6), Dallas Co.;
Foley & Williams, 243 Owen Bldg., Tyler Tex., LB $117,199, est. $75,000, grading, structures, base, surf. 8.14 mi. and FM 652, Proj. S 387 (3) and (4), Camp Upshur and Wood Counties; LB $115,220, est. $75,000, grading, structures, base and surf. 8.188 mi. Hy. FM 58, Proj. S 24 (3), Angelina Co.;
Thomas, Ratliff & Farr, Rogers, Tex., LB $156,776, est. $150,000, grading, structures 2.177 mi. Hy. St. 35, Proj. F 351 (4), Brazoria Co.;
Thomas & Ratliff, Rogers, Tex., LB $133,578, est. $100,000, recondition flexible base, asph. surf. tr. and seal coat 71.212 mi. Hy. S H 97, FM 63, 173, 140, 1786, Proj. C 328-6-10, etc., Atascosa, McMullen and LaSalle Counties;
Holland Page, P. O. Box 1181, Austin, Tex., LB $106,726, est. $75,000, grading, structures, base, surf. 9.477 mi. Hy. FM 1704, Proj. S 1685 (1), Bastrop Co.;
Collins Construction Co. of Texas, P. O. Box 1192, Austin, Tex., LB $493,741, est. $200,000, flexible base, b. conc. 2.977 mi. Hy. U. S. 80, Proj. F 235 (13), Ector Co.;
Dew Constr. Co., Inc., Tyler Tex., LB $81,983, est. $60,000, recondition flexible base, and asph. surf. 18.622 mi. Hy. FM 327 and U. S. 69, Proj. C 199-4-21 and C 894-1-2, Angelina Co.;
Public Constr Co., Denton, Tex., LB $91,249, est. $75,000, b. conc. 16.675 mi. Hy. U. S. 175, Proj. C 197-6-10, Henderson Co.;
E. W. Hable & Sons, Corsicana, Tex., LB $65,340, est. $100,000, flexible base, one course surf. tr. 1.702 mi. Hy. U. S. 84, Proj. C 123-1 and 2-11, Anderson and Cherokee Counties;
John F. Buckner & Sons, P. O. Box 76, Cleburne, Tex., LB $276,648, est. $250,000, grading, structures, base and surf. 11.257 mi. Hy. FM 1130, 1134 and 1136, Proj. V 1284-1-2, Orange Co.;
M. E. Worrell, Worrell & Watkins, Junction, Tex. and **L. H. Lacy Co.**, 5610 Yale Blvd., Dallas, Tex., LB $984,027, est. $250,000, grading, structures, storm sewers, c. conc. 1.481 mi. Hy. U. S. 75, Proj. 515 (16), Dallas Co. Bids Feb. 19. CD 1/31, 2/4 and 2/8.

▲ **Humble Pipe Line Co.**, Humble Bldg., Houston, Tex., Owner Builds, $2,173,000, addnl. crude oil pipe line outlet in Spraberry areas of Reagan and Upton Counties, TEXAS CD 2/13.

▲ **Gulf Pipe Line Co.**, Gulf Bldg., Houston, Tex., CA, $4,985,000, 80 mi. 24 in. crude oil pipe line from Midland to near Colorado City, TEXAS. Gulf Oil Corp., Midland, Tex. CD 2/13.

▲† **Chas. H. Tompkins Co.**, 907 16 St. N.W., Wash., D. C., and **James McHugh Sons, Inc.**, 6449 S. South Park Ave., Chicago, Ill., LB, $1,290,333, Lot No. 1, GCA hardstand, steel gas storage, radar maintenance bldg. nine B.O.Q. bldg., reconversion 49 barracks to AIO, administration bldg., cold storage-meat cutting shop, motor pool, gas service station, automotive shop and misc. bldgs. outside utilities; $485,616, Lot. No. 2, supersonic training bldg., training aids bldg., G-2, trainer bldg.; LB $978,500, Lot. No. 4, 6,000 sq. ft. base supply administration bldg., 116,000 sq. ft. warehouse; LB, $344,618, Lot No. 5, academic bldg.; LB $119,000, Lot No. 7, Ordnance Area; LB $679,695, Lot No. 8, aircraft maintenance shops; LB $189,500, Lot No. 9, base antenna farm; all at Harlingen Air Force Base, Inv. No. Eng 41-243-52-49, HARLINGEN, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Feb. 21.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **V & M Contg. Co., Inc.**, 4030 Chouto St., St. Louis, Mo. CA Approx. $10,000,000. 158 eight-family HOUSING units, 105 to 137 Sts. and 71 Hy., with business district, GRANDVIEW, MO. Klapmeyer Gardens, c/o Ray M. Klapmeyer, Martin City, Mo. (Correction—location of project). CD 1/15, under CA, Mo., Kansas City.

▲ **Omaha Public Power Dist.**, 17 and Harney Sts., Omaha, Neb., Hirsch Labor, Total est. $14,000,000. superstructure for POWER PLANT for new North Omaha Power Plant, OMAHA, NEB. A. G. Burns, c/o owner, ch. engr. Burns & McDonnell, 95 and Troost Sts., Kansas City, Mo., consult. engrs. CD 2/25, under LB.

▲ **Constant Constr. Co.**, 201 Perry St., Lawrence, Kan. CA $1,118,275, general contract, Senior High SCHOOL, LAWRENCE, KAN. Bd. Educ. c/o A. E. Westemeyer, sec., Lawrence, Kan. CD 2/19, under LB.

▲† **Tankersley Constr. Co.**, First National Bank Bldg., Oklahoma City 2, Okla. CA $3,408,713. addnl. AMMUNITION STORAGE FACILITIES, NOY 32399;
Cullum & Whittle, Box 5602, Dallas, Tex. CA $3,200,000, addnl. STORAGE FACILITIES, Spec. 32929 at Naval Ammunition Depot, MCALESTER, OKLA. Dpt. Navy, c/o Officer in Charge of Construction, Eighth Naval Dist., Bldg. 16, Naval Station, New Orleans, La. Awarded Feb. 14. CD 2/12, under LB.

▲ **J. M. Odom**, Box 774, Austin, Tex., CA, $1,074,415 (A. N. McCallum) North Austin High SCHOOL, AUSTIN, TEX. Austin Independent School Dist., 701 E. 11 St., Austin, Tex. Bids Feb. 14, awarded Feb. 20. CD 1/16.

W. D. Ferguson & Sons, Box 446, Brownsville, Tex., CA, $882,000. HOUSING Units, Tex. Proj. 65-1, HARLINGEN, TEX. Harlingen Housing Auth., Harlingen, Tex. Bids Feb. 5, awarded Feb. 18. CD 2/11, under LB.

▲ **O'Rourke Constr. Co.**, Box 7557, Houston, Tex., CA $1,068,400, 107,000 sq. ft., frame steel HIGH SCHOOL, PORT NECHES, TEX. Port Neches Independent School Dist., Port Neches, Tex. Bids Feb. 19, CD 1/29.

▲ **Eichleay Corp.**, 33 S. 19 St. Pittsburgh, Pa., CA building construction;
Allied Structural Steel Co., Clinton, O., CA structural steel;
A. S. Horner, 118 S. Pecos St., Denver, Colo., CA excavating foundation;
Stephen & Lambert, Pueblo, Colo., CA pipe;
Howard Foley, 510 W. 1 St. N., Salt Lake City, Utah, CA electrical work, for tube MILL, PUEBLO, COLO. Colorado Fuel & Iron Co., Pueblo, Colo. Total Est., $30,000,000. CD 8/21.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
March 19, 20 California

BIDS ASKED—BUILDINGS

Calif., San Mateo—HEALTH CENTER—B.A. 3/26—Bd. Supervs., San Mateo Co., Court House, Redwood City, 30,000 sq. ft. health center bldg., incl. offices and clinical facilities, $600,000. Douglas D. Stone & Lou B. Mulloy, 619 California St., San Francisco, archts. CD 12/11.

▲ **Calif., Los Angeles**—JUVENILE HALL—B.A. 4/1—Bd. Supervs. Los Angeles Co., Hall of Records, construct Juvenile Hall, $3,050,000. Kauffman & Stanton, 627 S. Carondelet St., archts. CD 6/21, under LB.

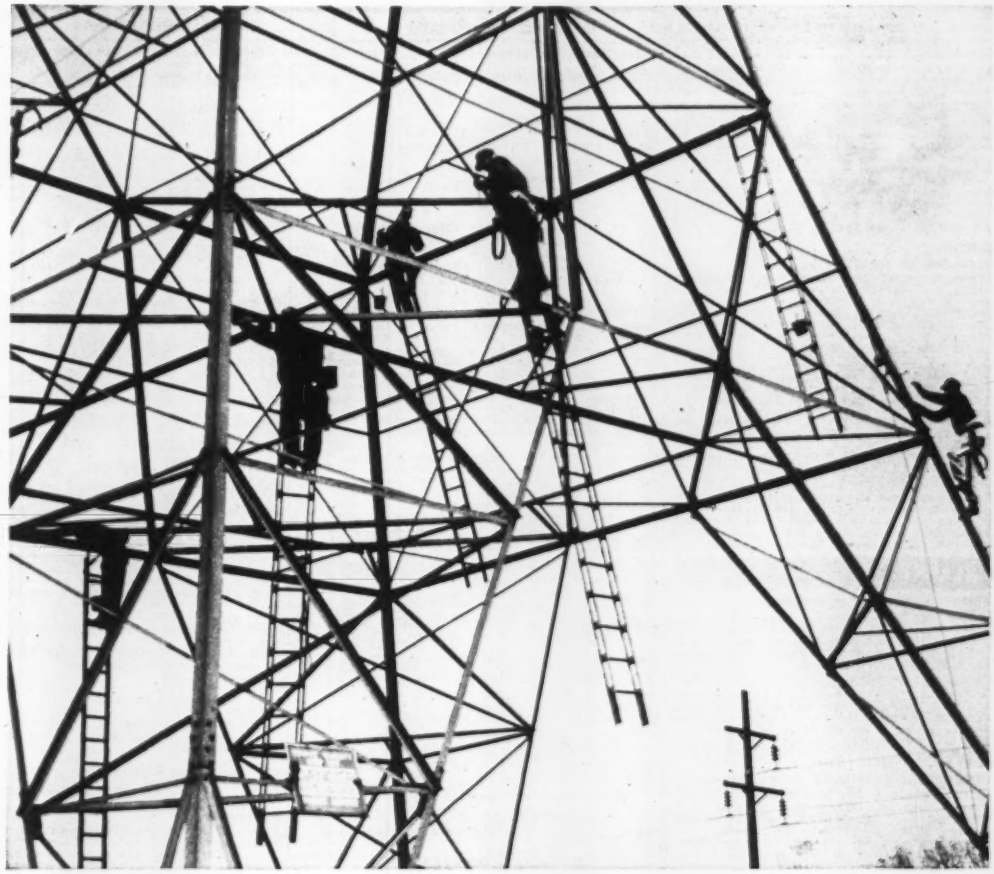
▲ **Calif., Bakersfield** — SCHOOL — B.A. 4/10 — Kern County Union High School Dist., 1341 F St., high school, Chester and Douglas Sts. $2,500,000. C. B. Alford & W. J. Thomas, Haberfeld Bldg., archts. CD 1/3/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OREGON**—State Hy. Comn., Highway Bldg., Salem,
Leonard & Slate, 7805 S. W. 40 St., Portland, Ore., CA, $1,530,464, grading, paving 5.6 mi. Divide-

(Continued on page 120)



Tailored coat for all kinds of weather

To keep the wires up and the juice pouring, this transmission tower has to be tough. Yet its interlaced steel body is always exposed to destructive weather attacks. That's why these painters are giving the steel specially "tailored" coats of Du Pont DULUX Metal Protective Paints.

DULUX primers and top coats are chemically formulated to give remarkable adhesion and flexibility . . . inhibit corrosion from moisture and weather. What's more, DULUX flows out fast, smooth and level with excellent hiding . . . dries quickly and covers up to 600 sq. ft. per gallon.

On exposed steel surfaces, DULUX performance records stand at 10-year, 12-year and even longer periods of protective service—service that means real dollar savings.

So for all types of structural steel painting, consult the Du Pont Sales Technician in your area. Or write E. I. du Pont de Nemours & Co. (Inc.), Finishes Div., Wilmington, Del.

DU PONT
REG. U. S. PAT. OFF.

150th Anniversary

Better Things for Better Living . . . through Chemistry

DULUX METAL PROTECTIVE PAINTS

Chemically engineered to do the job better

(Continued from page 118)

Anlauf unit, Pacific Hy., FAP BFI-189 (9), Douglas and Lane Counties. Bids Dec. 20, awarded Feb. 21. CD 1/3, under LB.

▲† M. H. Hasler Constr. Co. and D. & H. Constr. Co., Box 1-A, Folsom, Calif., LB, $3,173,561, levees along Columbia River and pumping plants, Kennewick, Inv. 52-57, WASHINGTON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Feb. 21. CD 2/15.

WASHINGTON—State Hy. Dpt., Olympia,
Curtis Gravel Co. and D-H Paving Co., P. O. Box 106, Spokane, Wash., LB, $847,335, est. $905,000 b. conc. 7.03 mi. Hy. 3, Richland Junction to Kennewick, F.A.P. F 018-4(3), Benton Co.;
Erland & Bickle, 8265 N. Barthwick Ave., Portland, Ore., LB, $241,840, clearing, draining, grading, surf. 1.995 mi. Hy. 1-S Woodland east, F.A.S. S-0260 (1, Cowlitz Co. Bids Feb. 19. CD 2/7.

BUILDINGS

LOW BIDS AND CONTRACTS

† Bennett-Campbell, Inc., Seaboard Bldg., Seattle, Wash., LB, $999,000, est. $850,000, 3 story, 8,500 sq. ft., rein.-con. U. S. Public Health Service HOSPITAL addn., Proj. 45-066, SEATTLE, WASH. General Services Admin. P. Bldgs. Service, General Services Bldg., 19 and F Sts. N.W., Wash., 25, D. C. Bids Feb. 21. CD 1/15.

Leo S. Wynans, Inc., 3201 N. E. Broadway, Portland, Ore., LB $959,913, 20-room Union HIGH SCHOOL, FOREST GROVE, ORE. Forest Grove School Dist., Forest Grove, Ore. Bids Feb. 14. CD 1/18.

▲ Halper Constr. Co., 739 N. Highland Ave., Los Angeles, Calif., CA, $2,000,000, 164 frame, stucco DWELLINGS in Tract 17425, LOS ANGELES, CALIF. Parkwood Encino 739 N. Highland Ave., Los Angeles, Calif. Southwest Drafting Service, 2724 W. Florence Ave., Los Angeles, Calif., archts.

† Acme Constr. Co., 827 13 St., Modesto, Calif., CA $884,498, Elementary SCHOOL, TRAVIS AIR FORCE BASE, CALIF. Housing & Finance Agency, 718 Flood Bldg., San Francisco, Calif. Bids Feb. 7, awarded Feb. 20. CD 2/19, under LB.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† Alaska—ACS FACILITIES—B.A. 3/18—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, construct ACS facilities, near Anchorage, Inv. No. ENG 95-507-52-49. Est. $500,000-$1,000,000. Plans deposit $25. CD 11/1, under LB.

† Alaska—B.A. 3/27—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. furnishing, del. f.o.b. cars shipping point or f.o.b. cars Eklutna, one 7.08x9-ft. fixed wheel gate hoist for surge tank at pressure tunnel Station 255 plus 30, Eklutna Proj., Inv. No. DS-3673.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† O. B. Ashbach & Sons, 2975 Hamline Ave. N., and Jay W. Craig Co., 1814 N. E. California St., both St. Paul, Minn., CA, $1,793,715, est. $1,605,061, approx. 55,000 cu. yd. wet-mixed concrete, aggregates, grout, etc. for Fort Richardson and 105,000 cu. yd. for Elmendorf Air Force Base, ENG 95-507-52-44, ALASKA. U. S. Eng. (APO 942, c/o PM, Seattle, Wash.). Anchorage, Alaska, Bids Feb. 6. CD 2/14, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
March 11, Ontario

▲ Ont., Galt—HOSPITAL—B.A. 3/12—South Waterloo Hospital Corp., R. H. Malcolm, secy., Lincoln St., 4 story, bsmt., 45x324 ft. main hospital bldg. 45x90 ft. rear wing, steel frame, concrete fdn. $1,300,000. Extended date. Allward & Gouinlock, 57 Bloor St. W., Toronto, archts. CD 2/19.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Angus & Taylor Ltd., 24 Fraser Ave., North Bay, Ont., CA, $500,000, 200x6600 ft. runway with taxiway strips, aprons etc. at Sudbury Airport, SUDBURY, ONT. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Awarded Feb. 19. CD 9/12.

AMERICANS ABROAD

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Thompson-Starrett Co., Inc., 444 Madison Ave., New York 22, N. Y. (RAR Turk, Ltd, Istanbul, Turkey, Philip Holzman, A. G., Frankfurt, Germany, Hochtief, A.G. Essen, Germany, and Siemens Bau-union, G.mb.H., Munich, Germany, associated) CA, Approx. $11,000,000, dam on Sakarya River in Northwest TURKEY (First unit in $35,000,000 Sariyar hydro-electric project, financed by ECA). Govt. of Turkey, Ankara, Turkey, Charles T. Main, 80 Federal St., Boston, Mass., U.S.A. engr. CD 9/7.

OFFICIAL PROPOSALS

Bids: March 19, 1952

Soil Explorations & Foundation Investigations

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., eastern time, on March 19, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW YORK STATE THRUWAY, HUDSON SECTION, SUBDIVISION 10 TUCKAHOE ROAD TO ROUTE 9 WESTCHESTER COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SH-29.

Maps, plans and specifications may be examined and obtained at:

a. Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, New York.
b. Mr. J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, New York.
c. Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City, New York.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $29,825.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,492.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

Bids: April 2, 1952

Delaware Memorial Bridge

CONTRACT NO. 18
NEW CASTLE INTERCHANGE RAMPS AND
TOLL PLAZA MODIFICATION

Sealed proposals for construction of access ramps at New Castle Overpass, the widening of pavement and the extension of parking areas at the toll plaza for "The Delaware Memorial Bridge" over the Delaware River near Wilmington, Delaware will be received by the Delaware State Highway Department at the office of the Director, Delaware Crossing Division, Administration Building, Delaware Memorial Bridge, Wilmington, Delaware, until 12 o'clock noon Eastern Standard Time, April 2, 1952, at which time and place said proposals will be publicly opened and read.

The work involves the following principal quantities:

Selected Permeable Material	5,500 cu.yds.
Select Material	2,800 cu.yds.
Fine Aggregate for Backfill	300 tons
Earth Excavation	20,100 cu.yds.
Cement Concrete Masonry	60 cu.yds.
Cement Concrete Pavement	1,830 cu.yds.
Wire Mesh Reinforcement	640 squares
Waterbound Macadam	1,235 tons
Bituminous Cement Concrete	660 tons
Topsoil	22,500 cu.yds.
8-Inch Perforated Underdrains	1,500 lin. ft.

Work on Contract 18 shall begin promptly after the execution of the Contract. It shall be completed in accordance with the following schedule:

Cement concrete pavement and shoulders in the toll area, August 1, 1952.

Entire Contract, September 1, 1952.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms furnished by the Department.

Each proposal must be accompanied by an acceptable surety bond or certified check for a sum equal to at least ten (10) per cent of the total amount of the proposal.

The Contract will be awarded or proposals rejected within twenty (20) days from the date of opening proposals. The right is reserved to reject any or all bids.

One set of the Plans and two copies of the Specifications may be obtained from the Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y. after March 10, 1952 upon payment of $10.00.

Any prospective bidder who has made such a deposit may secure extra blueprint copies of the Plans upon payment of 50 cents per drawing and an extra copy of the Specifications upon payment of $2.50 per copy.

Plans and Specifications need not be returned to the Engineers, and the above payments will not be refunded.

The Plans and Specifications and other contract documents may be examined at the office of the Engineer, Howard, Needles, Tammen & Bergendoff, or at the Engineers' project office located north of and adjacent to the west abutment of the Delaware Memorial Bridge in the State of Delaware.

State Highway Department
by: J. Gordon Smith, Chairman
W. A. McWilliams, Director
Delaware Crossing Division
March 1, 1952

Bids: March 25, 1952

Sewage Treatment Plant & Collector System

Sealed proposals will be received at the office of the Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky, 37 East Fourth Street, Newport, Kentucky, until 2 P.M., Eastern Standard Time, March 25, 1952, and opened immediately thereafter, for furnishing the material and performing the labor for the execution and construction of the following units and sections upon which separate proposals will be received:

Unit 1, Section B
Ohio River Collector—Campbell County
Unit 1, Section C
Licking River, Banklick Creek and Three Mile Creek Collectors
Unit 1, Section D
Ohio River Collector—Kenton County and Willow Run Collector
Unit 2
Second Street and Banklick Lift Stations and Licking River Crossing Nos. 1, 2, and 3.
Unit 3
Treatment Plant Complete
Unit 4, Section A
Eighth and Seventeenth Street Lift Stations
Unit 4, Section B
Licking River Collector, Kenton County

in accordance with the plans and specifications prepared by Vogt, Ivers, Seaman and Associates for the Commissioners of the Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky, and on file in the office of the Sanitation District No. 1.

Copies of plans for the complete project or for any units or sections together with specifications and proposal forms and any further information desired may be secured from the office of Vogt, Ivers, Seaman and Associates, Engineers — Architects, 505 Second National Bank Building, Cincinnati Ohio.

Drawings and specifications will be forwarded, shipping charges COLLECT, upon receipt of written requests. Deposits in the amounts indicated will be required for the plans and specifications:

Complete set	$100.00
Unit 1, Section B	20.00
Unit 1, Section C	30.00
Unit 1, Section D	20.00
Unit 2	20.00
Unit 3	40.00
Unit 4, Section A	20.00
Unit 4, Section B	20.00

Refunds for the plans and specifications will be made, returned prepaid, in good usable condition, within 10 days after bids have been opened.

Bids are to be sealed and addressed to:

Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky
37 East Fourth Street
Newport, Kentucky

The Commissioners of Sanitation District No. 1 reserve the right to reject any or all proposals, the proposal for any one or more of the units or sections of the work under consideration.

WILLIAM D. ANDERSON
Secretary, Sanitation District No. 1 of Campbell and Kenton Counties, Ky.

OFFICIAL PROPOSALS

Bids: March 11, 1952

Auxiliary Water Line

Borough of Blairsville
Blairsville, Pennsylvania

Sealed proposals in triplicate will be received by the Borough of Blairsville, Blairsville, Pennsylvania until 7:30 P.M., March 11, 1952, for the construction and complete installation of a new ten inch (10") a uxiliary water line.

Plans and specifications for the wor : to be done are on file and open for inspection at the office of the Borough Manager, Borough Hall, Blairsville, Pennsylvania and in the office of the Consulting Engineers, Gilbert Associates, Inc., 412 Washington Street, Reading, Pennsylvania. A complete set of such documents may be obtained from the Borough Manager or Consulting Engineers upon deposit of Ten ($10.00) Dollars, the full amount of which will be refunded upon submission of a bona fide bid and return of the plans and specifications within ten (10) days after acceptance of bids.

Unit price bids will be required for each item to be supplied and each type of servIce to be performed for the Contract.

The work to be performed is as follows:

Construction and complete installation of two (2)sections of auxiliary ten inch (10") water line, crossing McGee Run at the two (2) points specified on the Engineer's drawings and the Conemaugh River crossing specified on the Engineer's drawings; work consists of properly laying approximately 4,958' of ten inch (10") water line, approximately 96' of which will be stream crossing and approximately 411' shall be river crossing. Eight (8) gate valves and two (2) air release valves of proper size shall be installed as specified and shown on the Engineer's drawings.

Each bid shall be accompanied by a certified check or bid bond drawn to the Borough of Blairsville and in an amount not less than Five Percent (5%) of the bid, as a guarantee that if the bid is accepted, a Contract will be entered into and the performance thereof properly secured.

This Contract will be awarded to the lowest responsible bidder, but the Borough of Blairsville reserves the right to accept or reject any or all proposals submitted. All proposals shall be sealed, marked, and addressed as follows:

Borough Manager
Borough Hall
Blairsville, Pennsylvania
Proposal for Auxiliary Water Line

No bidder shall withdraw his bid within forty-five days (45) days after the actual date of the opening thereof.

John A. Fatora
Borough Manager
BOROUGH OF BLAIRSVILLE
February 21, 1952

Bids: March 13, 1952

New Jersey Road Work

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 25A, SECTION 1H
Construction of Route 25A, Section 1H, from High Street to Broad Street, Paving, Bridges & Retaining Walls, City of Newark, Essex County, Federal Project No. AF 187(6). Length 0.221 miles. The principal items of construction are:

Roadway Items

Estimated:

1,090 cu. yds. Roadway Excavation-Earth
30,336 cu. yds. Borrow Excavation
5,258 sq. yds. 10" Reinforcement Concrete Pavement
948 sq. yds. 14" Reinforcement Concrete Pavement
808 sq. yds. 18" Bridge Approach Slabs
953 lin. ft. Reinforced Concrete Pipe
6,883 lin. ft. White Concrete Curb
Bridge Items
5,246 cu. yds. Concrete in Structures
235,315 lbs. Reinforcement Steel in Structures
1,304,600 lbs. Structural Steel
3,675 lin. ft. Treated Timber Piles

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, Thursday, March 13, 1952, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and P.L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 309 Washington Street, Newark, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: March 19, 1952

Construction of Two-Lane Highways

STATE OF RHODE ISLAND AND
PROVIDENCE PLANTATIONS
DEPARTMENT OF ADMINISTRATION
DIVISION OF PURCHASES

Sealed Proposals addressed to the Division of Purchases, for the construction of the following project will be received by the Division of Purchases at the office of the State Purchasing Agent, Room 123 State House, Smith St., Providence, R. I., until 10:00 A.M. on the 19th day of March, 1952, at which time they will be opened and read in public:

R. I. Contract No. 5207, F. A. Project No. U-5(3), Counties of Providence and Kent, Meshanticut Interchange, Cranston and Warwick, Rhode Island. Construction of two separate two-lane roadways with numerous connecting lanes; two (2) single-span bridges with steel stringers and concrete decks (composite type); single-span bridge with plate girder and rolled beam stringers having concrete deck (composite type); reinforced concrete culvert for relocated brook; three-span viaduct with steel stringers and concrete deck (composite type); together with paving and incidentals. The work includes two service and three temporary construction roads, walks; installation of signals, signs, walls and all other appurtenant items of work.

Bids for the above work must be made on blanks furnished by the Department of Public Works, Division of Roads and Bridges. Plans and specifications and special provisions may be examined at Room 123 State House or 224 State Office Building, Providence, R. I., on and after Wednesday, February 27, 1952, every weekday except Saturdays and holidays between the hours of 8:30 A.M. and 4:30 P.M. Blanks for submitting proposals may be obtained thru the office of the State Purchasing Agent at the address above stated. A deposit of $100.00 shall be made for each set of contract documents and $50.00 will be refunded if plans and specifications are returned in good condition within two weeks after the opening of bids.

A certified check or bid bond payable to the State of Rhode Island, or cash, in the amount of $75,000 must be furnished by each bidder.

This Proposal Guaranty will be returned after the Contract has been executed. A performance bond of one hundred (100) percent of the contract price with a satisfactory surety company will be required of the successful Bidder. The Division of Purchases reserves the right to reject any or all bids.

FEDERAL REQUIRED CONTRACT PROVISIONS: The attention of prospective bidders is called to the fact that this project is to be bid upon and the contract executed under the rules and regulations for carrying out the provisions of the Federal-Aid Highway Act of 1944 and the Special Provisions, dated July 2, 1948, as amended and supplemented as required by the Department of Commerce, Bureau of Public Roads.

EMPLOYMENT LISTS: A local employment service has been designated by the R. I. Employment Service to prepare the employment lists for the project. Requests for men to be employed on this project shall be submitted to the District Office at 112 Union Street, Providence, R. I.

WAGES OF LABOR: In conformity with the provisions of Chapters 290 and 291 General Laws, 1938, the minimum wages for a day's work paid craftsmen, teamsters and laborers shall not be less than the customary and prevailing rate of wages for a day's work in the same trade or occupation in the locality where the work is undertaken. Such a schedule of wages has been established on a minimum hourly basis and is on file in the office of the State Department of Labor. The contractor shall pay not less than these minimum wage rates.

SUBLETTING OR ASSIGNING THE CONTRACT: The attention of Bidders is directed to the Standard and/or Special Provisions covering subletting or assigning the contract.

DEPARTMENT OF ADMINISTRATION,
DIVISION OF PURCHASES
By: Franklyn A. Adams,
State Purchasing Agent.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3674) will be received at Ephrata, Washington, until March 27, 1952, for furnishing labor and materials for: Ringold Pumping Plant, Columbia Basin Project. Location: 3½ miles east of Ringold, Washington. Principal items are: Excavation for structures, for trench for discharge pipes, and for service road, 23,500 cu.yds.; concrete 700 cu.yds.; furnishing and laying various sizes and types concrete pressure pipe, 3,072 lin.ft.; installing 4 pumping units, 95,000 lbs.; furnishing and installing steel discharge pipes, 60,000 lbs.; and other work. Completion time 510 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3672) will be received by Bureau of Reclamation, Palmer, Alaska, until April 1, 1952, and then publicly opened for furnishing labor and materials and performing all work for the construction of Ekutna-Anchorage 115-kilovolt transmission line, Ekutna Project, Alaska. The work is situated between Palmer and Anchorage, Alaska. The transmission line will be 115,000-volt, 3-phase, single-circuit, wood-pole, H-frame type, approximately 26 miles long and without overhead ground wires. All materials are to be furnished by the contractor. Time allowed for completion will be 240 days. For particulars, address Bureau of Reclamation, Palmer, Alaska; or Building 53, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: March 12, 1952

New York State Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on Wednesday, March 12, 1952 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects; Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition within a period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 2				
		I. Ketchum, District Engr., 109 No. Genesee St., Utica, N. Y.				
Fulton	FAC 52-1	City of Johnstown: Comrie Ave.-E. Main St. to Briggs St.) City of Johnstown: Briggs St.-North East Ave. (Cayadutta Creek to East City Line) Proj. U-419(3); U-555(7)	1.09	Asph. Conc. Ty. 1A, Opt.	$18,000 Plans $10	$323,000
Herkimer	FARC 52-21	Frankfort-East Schuyler, S.H. 233 Herkimer-Frankfort S.H. 458 Proj. U-657-2)	3.03	9" Cem. Conc. Pavt. 24'-52' Wide = 2.99 mi. Asp. Conc. Ty. 1A, Opt. = 0.04 mi.	$35,000 Plans $15	$631,000
Montgomery	M.T. 52-2 R.C. 52-27 S.T. 52-5 S.T.C. 52-6	New York State Thruway-The Mohawk Section Subdivision No. 15 (So. Amsterdam By-pass) Amsterdam-Minaville Pt. 1, S.H. 32 Amsterdam-Morris Corners, S.H. 513 Snooks Corners-Amsterdam Co. Rd. 22; Morris Corners to S.H. 8338 Co. Rd. 21; Minaville Street Connection	6.20 (1.51 Access)	9" Cem. Conc. Pavt. 26@25' Wide & Var = 5.50 mi. Asp. Conc. Ty. 1A, Opt. = 0.70 mi. Access Rds. Conc. Pavt.) = 1.51 mi. Double Box Br. 26@25' Span Conc. Arch 48' Span Hy. Sep. 4 sp. Alpha I-Beam 48'-46' & 26@74' Hy. Sep. 3 sp. I-Beam 46', 56', 31' Hy. Sep. 4 sp. Alpha I-Beam 58'-9", 65'-9", 60', 33' 6" Hy. Sep. 4 sp. Alpha I-Beam 26@62'-6", 61'-6", 31'-6", Hy. Sep. Open Box 30' Span Alpha Royalty = $681.60	$240,000 Plans $100	$4,126,000
		DISTRICT No. 6				
		H. F. Brumm, District Engr., State Office Bldg., Hornell, N. Y.				
Tioga	PSC 7088-8145	Elimination of grade crossing of Owego-Candor Pt. 1 S.H. 5420 (North Ave.) with the Erie R.R.	....	Drainage Facilities	$2,200 Plans $10	$41,000
		DISTRICT No. 9				
		F. W. Donovan, District Engr., 71 Frederick St., Binghamton 21F, N. Y.				
Sullivan	FASS 52-5	Livingston Manor-Youngsville Pt. 2 Co. Rd. Proj. S-317(1)	4.50	Graded Cr. Stone Bit. Mulch = 4.48 mi. Misc. Work = 0.02 mi. 3 Temp. Timber Brs. 42.4'; 50' & 50.5' Spans	$28,000 Plans $25	$504,000
		DISTRICT No. 10				
		J. J. Darcy, District Engr., Montauk Highway at Little East Neck Rd., Babylon, Long Island, N. Y.				
Suffolk	FASH 52-3	Sunrise Highway Ext. (Broadway Ave. to Washington Ave.) Proj. U-947(7)	3.75	9" Cem. Conc. Pavt. 26@25' Wide	$100,000 Plans $15	$1,805,000
						$3,304,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Bids: March 26, 1952

Seagirt Boulevard Extension

Sealed bids will be received by the Nassau County Bridge Authority in the chambers of the Board of Supervisors, First Floor, Old County Court House, Franklin Avenue, Mineola, Nassau County, New York, until 10:30 A.M. on March 26, 1952, when they will be publicly opened and read aloud, and the Contracts awarded as soon as practicable thereafter, for the construction of Seagirt Boulevard Extension, Beach 9th Street to Beach 35th Street, Far Rockaway, Queens County, New York.

The work will be performed under a single, unit-price contract. Attention of bidders is particularly called to the requirements of the Labor Law as to conditions of employment to be observed and the minimum wage rates to be paid under the contract, and to the fact that a performance bond will be required.

After the opening of bids and when directed by the Chairman of the Authority, the bidder must submit a sworn statement setting forth such information as the Chairman may require concerning his financial condition, present and proposed plant and equipment, the personnel and qualifications of his working organization, prior experience and performance record.

Proposal for Bids, Bid Form of Agreement, Contractor's Bond, Specifications and the Plans may be examined at the offices of Hardesty & Hanover, Consulting Engineers, 101 Park Avenue, New York, New York, not later than March 25, 1952, 5:00 P.M. preceding the day for receiving bids, and copies of the same may be obtained there.

A deposit of Fifteen ($15.00 Dollars will be required for each copy of the Plans and Contract Documents. Any bidder upon returning to the offices of Hardesty & Hanover, Consulting Engineers, 101 Park Avenue, New York, New York, such set of Contract Documents and Plans in good condition within thirty (30) days after the awarding of the contracts covered thereby, or the rejection of the bid of such bidder, will be refunded his deposit and any nonbidder upon so returning such set will be refunded Ten ($10.00) Dollars of his deposit.

Each proposal must be accompanied by a security deposit in the amount as fixed in Article 20 of the Agreement, by money or a certified check on a solvent bank or trust company, made payable to the Nassau County Bridge Authority or the bidder, as assurance that the bid is made in good faith (e.g., Nassau County Bridge Authority *or* John Smith, Inc.); or in lieu of such money or certified check, the bidder may furnish with his bid a bond in the amount of such security deposit (the form of which bid bond may be obtained at the offices of Hardesty & Hanover, Consulting Engineers), duly executed by the bidder as principal and having as surety thereon a surety company approved by the Nassau County Bridge Authority.

The Nassau County Bridge Authority reserves the right to waive any informalities in any bids, or to reject any or all bids, and to accept the bid which it deems most favorable to the interest of the Authority after all bids have been examined and canvassed.

BY ORDER OF
NASSAU COUNTY BRIDGE AUTHORITY
By Frank X. Hegarty, Manager

Dated: At Mineola, N. Y.
February 27, 1952.

Bids: March 17, 1952

Sand Drainage & Surcharge Fill For Building No. 141

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
SAND DRAINS AND SURCHARGE FILL FOR BUILDING NO. 141
CONTRACT PN-200.021

Sealed proposals for preparation of the site for construction of Building 141 at Port Newark, including the construction of sand drains and the placing of fill, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:00 A.M. Monday, March 17, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, March 6, 1952

U. S. Government

Department of Commerce, Bureau of Public Roads, February 21, 1952. SEALED BIDS will be received at the office of the Bureau of Public Roads, 214 Globe Building, 4th and Cedar Sts., St. Paul, Minnesota, until 11:00 a.m., C.S.T., MARCH 21, 1952, for Minnesota Forest Highway Project No. 6-B, Superior National Forest, Minnesota. Construction of Steel I-beam bridge over arm of Garden Lake, near Winton. Length 0.051 mile. The approximate quantities of the more important items are 4,030 cu.yd. Excavation, 545 cu.yd. Concrete, 67,000 lb. Reinforcing steel, and 124 tons Structural Steel and Steel Piling. Minimum wage rates have been fixed as required by law. Plans, Specifications and Proposal forms are available upon request at the address given above, or Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia. H. J. Speiman, Division Engineer.

OFFICIAL PROPOSALS

Bids: March 17, 1952

Rehabilitation of Runway C

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-220.002

Sealed proposals for repairing three areas of Runway C southwest of the intersection of Runway C with Runways B and V at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:15 A.M. Monday, March 17, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, March 6, 1952

OFFICIAL PROPOSALS

Bids: March 20, 1952

Sewage Treatment Plant

Sealed Bids are Invited by the Mayor and Town Council of the Town of Fairfax, Virginia, to be received, opened, and read in public, at the Office of Massey Engineers, Consultants, Ford Building, Fairfax, Virginia at 3:00 o'clock P.M., E.S.T., Thursday, MARCH 20, 1952, for the construction of approximately 27,000 lineal feet of 8" to 18" sanitary sewers and appurtenant structures, and also a 0.50 MGD Single Stage Bio-Filtration Sewage Treatment Plant.

The sewers and Plant may be Bid separately. Authority has been given the Town by N. P. A. to commence construction, and has allotted all of the control materials necessary for the complete Plant construction for the 1st, 2nd, and 3rd Quarters of 1952.

The bidder shall attach to his bid a BID-BOND or certified check made payable to the Treasurer of the Town of Fairfax, Virginia of at least 5% of the total amount of his bid.

Each bidder shall hold a current, valid certificate of registration as a contractor who can operate in the Commonwealth of Virginia. No bid will be accepted unless this registration number is shown in the proper place on the Proposal Form.

On award of contract, the bidder will be required to furnish a performance bond and a maintenance bond both in 100% of the total contract price, also he shall show by certificates that he carries adequate Public Liability, and Property Damage, and Workmen's Compensation Insurance.

The Town of Fairfax, Virginia reserves the right to reject any and all bids and to waive any informality regarding the opening of bids, rejecting of bids, or to whom the contract is awarded.

No Bid may be withdrawn for 30 days after the actual opening thereof.

Plans, Specifications, and Contract Documents may be obtained from Massey Engineers, Ford Building, Fairfax, Virginia upon payment of $15.00 in cash for each set, which sum will be refunded upon the return of such documents in good condition within 10 days after the Bid date.

MASSEY ENGINEERS
CONSULTANTS

Bids: April 1, 1952

Hackensack River Bridge, Route 25, Superstructure

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Construction of the Superstructure for a bridge over the Hackensack River on State Highway Route 25, between Jersey City and Kearny, Hudson County, Federal Aid Project No. AU 192(2). The principal items of construction are: Estimated:

3,340	cu. yds. Concrete in Structures
599,389	lbs. Reinforcement Steel in Structures
11,053,724	lbs. Structural Carbon Steel
887,400	lbs. Structural Silicon Steel
147,316	lbs. Cast Steel
19,840	sq. ft. Steel Grating
164,200	lbs. Wire Ropes, Connections & Deflectors
361,800	lbs. Sheaves, Shafts & Bearings
137,230	lbs. Span Operating Equipment
25,800	lbs. Guide Rollers & Air Buffers
2	units Elevators
	Electrical Equipment for Lift Span

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, April 1, 1952, at eleven o'clock (11:00 A.M. —EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 23 of the Revised Statutes of New Jersey and supplements and P.L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 2855 Boulevard, Jersey City, New Jersey, and 309 Washington Street, Newark, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway, Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: March 17, 1952

Steel Ground Storage Reservoir

CONTRACT: NO. 52-1
RESERVOIR NO. 1
75TH STREET & DICKENS AVENUE STATION
OFFICE OF THE CITY MANAGER
Miami Beach, Florida
February 25, 1952

Sealed proposals will be received at the above office until 10:30 A.M. on the 17th day of March, 1952, at which time and place they will be publicly opened, for the following structure, in the City of Miami Beach, State of Florida, as required to be constructed by the City Council of said City:

One—4,580,000 gallon Steel Ground Storage Water Reservoir complete including Steel, Fabrication, Erection and Painting.

All work is to be done according to the Plans, Specifications, Proposal and Contract of the City of Miami Beach.

A certified check or bid bond in the amount of 2½% of the total amount of the Proposal shall accompany each bid. Checks shall be made out to the City of Miami Beach.

Plans and Specifications may be obtained upon request at the office of Manager Shop and Water Department, 3rd floor, City Hall, Miami Beach.

The right is reserved to reject any or all bids.

CITY COUNCIL CITY OF MIAMI BEACH
(Signed) C. W. Tomlinson
City Clerk

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3675) will be received at Idaho Falls, Idaho, until April 1, 1952, for furnishing labor and materials for: Palisades Dam and Power Plant and relocation of roads, Palisades Project, Idaho. Location: Near Irwin, Idaho. Principal items are: 19,000,000 cu. yds. of excavation; furnishing and placing 1,700,000 lbs. of tunnel supports; 13,000,000 cu. yds. of earth, sand gravel and cobble fill in dam embankment; furnishing and placing 13,000,000 lbs. of reinforcement bars; 147,000 cu. yds. of concrete; installing 10,000,000 lbs. of structural steel, penstock and outlet pipe; gates, hoists, cranes, valves and other metalwork; and other work. Completion time 1,956 days. For particulars, address Bureau of Reclamation, Irwin, Idaho; or Building 53, Denver Federal Center, Denver, Colorado.

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

MARINE ENGINEER (Mechanical) GS-11, $5340 per annum. Two and one half years of progressive professional engineering experience and a full 4 year or longer professional engineering curriculum leading to a bachelor's degree in an accredited college or university. Interested applicants communicate with the Personnel Branch of Corps of Engineers, U. S. Army, Office of the District Engineer, 80 Layfayette Street, New York 13, N. Y.

POSITIONS VACANT

ASSISTANT CONTROLLER for permanent position with general construction company. Experience in systems, internal audit, property accounting, budget and cost-plus accounting is essential. Beginning salary $8,000 to $9,000. Forward resume of experience, education and personal qualifications. P-3456, Engineering News-Record.

CHIEF ACCOUNTANT needed by well established contractor. Initial assignment on large CPFF contracts Excellent opportunities for advancement in growing company. Starting salary range $6,000 to $7,000. Submit summary of education, experience and personal data. P-3460, Engineering News-Record.

DETAILER AND Checker experienced in making and checking installation details of piping and equipment and supervising such installations used in connection with the construction of water works and sewage treatment plant. Office near Philadelphia. State experience, references and rate expected. R. M. Luff Construction Co., Willow Grove, Pa., 'phone Willow Grove 2005, ask for Mr. Paul X. Biattler.

EXPERIENCED ESTIMATOR and Superintendent for "Gunite" Restoration and High Pressure Grouting. P-3326, Engineering News-Record.

(Continued on the following page)

Permanent Positions Open to

ENGINEERS

. . . after training at full-time pay . . . as

Consultants in Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:
P-2807, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

CHIEF DRAFTSMAN

Capable of supervising 75 men under general supervision of Chief Engineer. Man should be about 45 years of age and should have wide experience in design of heavy industrial mechanical equipment, piping and heavy foundations. Salary commensurate with ability.

P-3452, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Illinois

ENGINEERS—DESIGNERS—DRAFTSMEN

ARE YOU INTERESTED IN A CAREER SERVICE?

The division of Road Design, MARYLAND STATE ROADS COMMISSION offers *Permanent Positions* to qualified men in order to carry out its extensive construction program. This is not just another job offer. This is an opportunity to become affiliated with a forward looking state highway department next door to the National Capital. Wanted especially:

Civil Engineers—Men with graduate degrees in civil engineering.

Highway Designers and Draftsmen—Immediate openings for experienced and qualified men.

Qualified applicants will be employed immediately pending Merit System examination which will be held several months after employment. Immediate vacancies available to qualified men include:

Junior Assistant Highway Engineer II ..... **$3660-4575 per annum**
Senior Draftsman II ..... **$3240-4050 per annum**

IN ADDITION, every position with the Maryland State Roads Commission means:

1. Immediate Employment at Base Salary
2. Annual Salary Increments (over period of 5 years)
3. Merit System Protection
4. Opportunities for Advancement
5. Annual Leave with Pay (15 days, cumulative to 30)
6. Generous Sick Leave with Full Pay
7. Liberal Retirement Benefits

Address W. Phelps Thomas, Personnel Director, Maryland State Roads Commission, Tower Building, Baltimore 2, Maryland for application today.

William F. Childs, Jr
Chief Engineer

Russell H. McCain
Chairman

MECHANICAL DESIGN ENGINEERS

Steady employment with expanding heavy machinery manufacturer with permanent industrial market. Must have experience in heavy machinery design and layout, and be interested in original development. Send complete data, including photo.

THE EIMCO CORPORATION
P. O. Box 300
Salt Lake City 10, Utah

ENGINEERS

Major Petroleum Refinery Construction Company located in New York City desires to add to its expanding staff. If you can qualify for one of the jobs listed below and are interested in a challenging opportunity please submit your resume in detail and past earnings record to the box number below. Our employees know of this ad.

SCHEDULING ENGINEER experienced in job scheduling preferably on petroleum or chemical plants starting with the engineering and proceeding through procurement and construction.

CONSTRUCTION SUPERINTENDENT must have experience in construction of oil refineries and the exercise of executive authority at job site. Must be able to travel.

ASSISTANT TO CONSTRUCTION AND PROCUREMENT SUPERVISOR requires supervisory field erection experience on oil refineries and chemical plants as well as some experience in procurement, expediting and inspection of refinery equipment. Headquarters in New York City with some travel required.

P-3463, Engineering News-Record
330 W. 42 Street, New York 36, N. Y.

ENGINEERS

Opportunities now available for men with heavy industrial experience in the following phases of design: mechanical, electrical, structural, piping, civil.

FOR WORK IN OAKLAND HOME OFFICE

Write outlining experience to

KAISER ENGINEERS
Division of Henry J. Kaiser Co.
Dept. A, 1924 Broadway
Oakland, California

CONVEYOR DESIGNER

Industrial Engineer to design all types of conveyors and material handling equipment and also prepare their specifications. Should be familiar with modern plant engineering practices. This is not a defense job and offers real opportunity for progress in industrial plant work. In reply state age, experience and salary expected.

P-3533, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS VACANT

(Continued from preceding page)

FIELD SUPERINTENDENT—Piping. Well established Northwestern Ohio Plumbing, Heating and Piping Contractor has opening for experienced man as assistant to general field superintendent. Good future assured. Reply giving background, experience and salary expected. P-3476, Engineering News-Record.

JOB ENGINEER, experienced in industrial or central station Power Plant construction. Location Pacific Northwest, with nationally known Engineering and Construction Company. State qualifications, availability and salary desired. P-3479, Engineering News-Record.

PARTY CHIEF—for Engineer-Land Surveyor. Must be either graduate or thoroughly familiar with topo mapping and general surveying. No drinkers. State age, education, experience, salary required, when available. Reply P. O. Box 464, Bessemer, Alabama.

STORM DRAINAGE Engineers — Men having experience in design and preparation of drawings for Storm Drainage Systems including inlets, collection systems, interceptors and culverts. Good pay for qualified men with training and experience. Opportunity for advancement. Furnish full information regarding education, training and experience, age, references and salary required. Replies strictly confidential. Department of Public Works, Baltimore County, Towson 4, Maryland.

STRUCTURAL ENGINEER: Experienced in steel design industrial and commercial buildings by a leading Middle-West structural steel fabricating company. Excellent opportunity for qualified man. Permanent position, hospitalization, group insurance and pension plans. P-3473, Engineering News-Record.

SUPERINTENDENT—ASPHALT Plant in New Jersey, must be experienced in operation and maintenance of plant and road equipment, materials and production. Write full qualifications, references and salary. P-3349, Engineering News-Record.

WANTED: CIVIL Engineer I for permanent position in our City Engineering Dept. Preferably a recent College Graduate in Civil Engineering. Salary $3360 to $3840 plus Hospital & Surgical Insurance and retirement plan. Apply by letter to Personnel Director, City Hall, Racine, Wisconsin.

WANTED—GRADUATE Civil or Structural engineer as field representative, Ohio, by long established engineering, promotional and educational organization. Give resume of education, engineering experience and salary requirements. Prefer age 25-45. P-3450, Engineering News-Record.

WANTED IMMEDIATELY Superintendent thoroughly experienced to supervise on large canal and levee project in Southeast. Must be good organizer, producer, know men and equipment. Write stating qualifications. P-2925, Engineering News-Record.

WANTED: RECENT graduate Civil Engineer for work in City Engineering Department, eastern Wisconsin City of 20,000 population. Salary from $3000 to $3480 per year. Apply by letter, stating qualifications. Enclose recent photograph. P-3277, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

SALESMEN: DISTRIBUTOR and Manufacturer of leading construction and industrial equipment requires services of several men to solicit heavy construction contractors and industrial plants in N.Y.C. Metropolitan area. Prefer engineering background but not necessary. Substantial salary, commission, all selling expenses and transportation furnished. Excellent opportunity for man to associate with an old line outfit. State past experience, age, education. Reply to SW-3520, Engineering News-Record.

(Continued on opposite page)

WANTED

Manufacturing Representative

Nationally known and advertised concern selling construction equipment replacement parts thru construction equipment and welding supply dealers and distributors has several open territories. Our employees know of this ad. Write in complete detail regarding territories covered, lines carried, personal history and reference in confidence.

RW-3505, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS & FOREMEN

Superintendents and Project Managers are in greater demand than ever before.

LEARN IN SPARE TIME—AT HOME

Get the practical "Know-How" . . . detail by detail from elementary material to the complex techniques of organization and management as developed and used by large successful contractors.

Learn all about Contracts & Sub-Contracts, Job Organization, Departmental Organization, Planning, Production, Tools & Equipment, Estimating, Cost Systems, Purchasing, Clerical Systems, Field System, Safety, Inspection and Industrial Relations.

Send post card today for complete outline and Free Trial Lesson.

General Superintendent

GEO. E. DEATHERAGE & SON, INC.

5 E. PRESTON STREET

BALTIMORE MARYLAND

(Continued from opposite page)

EMPLOYMENT SERVICE

SALARIED PERSONNEL $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

CABLE SPLICER (wire rope). 22 yrs. exp. My shop or your job. Own tools and transportation. McGlone, Churchville, N. Y.

CIVIL CONSTRUCTION. Irrigation & Drainage. Engineer-Graduate Civil Engineer, Thirty-five years diversified experience in technical administration, planning, design and supervision over construction works. Recently completed one year on overseas assignment. Interested in position with major construction company or consulting engineering firm. PW-3286, Engineering News-Record.

CIVIL ENGINEER: Contractor-Engineer representative or supervising engineer. Broad field and office experience, general construction, airports, highways, municipal and major defense projects. Reports. Twenty years on responsible assignments in Latin America, West Indies, Pacific Islands and Far East. Fluent Spanish. Willing to travel. Prefer South or foreign but any location considered. Reliable, active and in excellent health. Age 64. Personal interview suggested. Registered P.E. N.Y. Now in New York City. PW-3294, Engineering News-Record.

CIVIL ENGINEER—grad. 2 yrs. experience in city, field and office engineering on paving—water—sewer. 2 yrs. as construction supervisor and surveyor for contractor. Excellent references. PW-3466, Engineering News-Record.

CIVIL ENGINEER: 28, M.S. in C.E. (Structural major), 1 yr. construction, 1 yr. flood control project (hydraulics), 1 yr. designer draftsman. Desires Overseas position, prefer structural design. PW-3529, Engineering News-Record.

CONSTRUCTION EXECUTIVE, 45, wide experience of 25 years as operations manager, superintendent, engineer, estimator, pricing, purchasing and contracting for commercial and industrial buildings and projects up to 100 million dollars. Presently employed in responsible position, desires change. PW-3403, Engineering News-Record.

ENGINEER—B.S. Geophysics—Age 25—19 months experience supervising cable tool drilling operations and conducting pumping test investigations of ground water. Desires job in hydrology or water supply. PW-3488, Engineering News-Record.

ENGINEER—SALES, Civil Grad., age 30. Nine years exp. handling sales and office force in multi-plant concrete products corp. This included extensive building and sewer design. Also executive in two corp. so understand all phases of costing, purchasing, selling, plant management, and personnel. Will consider foreign in Central and S.A., or Denver vicinity and west in U. S. Pay not as important as advancement possibilities. Used to working hours necessary to complete job right. Will come for personal interview. Reply PW-3508, Engineering News-Record.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-first year. Write today.*

WILSON *Engineering Corp.*
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

POSITIONS WANTED

EXECUTIVE ENGINEER, management, supervision, heavy construction, estimates, reports, foundations, dams, tunnels, harbor work, difficult subaqueous structures, experience 40 years. PW-3497, Engineering News-Record.

FOREMAN, WALKING Boss, Irish-American, 47 years of age, 30 years experience on Highway Construction, South or Central America preferred. PW-3342, Engineering News-Record.

GENERAL SUPERINTENDENT Engineering background 30 years experience in construction of Buildings, Roads, Sewers and all phases of Air-field Construction also rehabilitation work. Have served as Project Manager or Supervisor here and abroad. PW-3464, Engineering News-Record.

MATERIALS ENGINEER 5½ years experience airfields, highways, dams. Specialist in soil mechanics, asphalt and concrete. Technical supervision laboratory, and field control. PW-3491, Engineering News-Record.

SECRETARY, STENOGRAPHER, female. Technical dictation. Engineering and construction experience. PW-3526, Engineering News-Record.

STRUCTURAL (REG.) Hydraulic engineer supervisory capacity possibly available soon. PW-3530, Engineering News-Record.

WORK WANTED

Work Wanted. Part time drafting, detailing, or designing on Structural Steel Concrete, or related fields. New York City or New Jersey preferred. WW-3408, Engineering News-Record.

WANTED

Large engineering firm wishes to acquire several complete plants through purchase of (1) capital stock, (2) assets, (3) machinery and equipment, whole or in part. Personnel retained where possible, strictest confidence.

Box 1206
1474 Broadway New York 18, N. Y.

FOR RENT

(1) 55-B and (1) 75-B Lorain shovel-cranes. Both are 1-C.Y. machines and are in first-class operating condition.

THOS. C. BROWN CO., INC.
307 Union St. Schenectady, N. Y.
Phone: 4-0814

FOR RENT

TRUCKCRANES

20T capacity—Late Models—80' Booms —20-30' Jibs

GARDNER CONSTRUCTION CO.
Ph. 2-2606 Allentown, Pa.

CORPS OF ENGINEERS, Office of the District Engineer, Detroit District, 1900 Cadillac Tower, Detroit 26, Mich., 11 February 1952. Sealed proposals will be received at this office until 2 o'clock p.m. on the 14th day of March 1952, and then publicly opened for the sale of 2 units of used hydroelectric generating equipment, complete, including turbines, generators, miscellaneous switchgear, etc., presently located at Sault Ste. Marie, Michigan. Copies of sale advertisement No. CIVENG-20-064-52-36 (Sales) may be obtained by application to this office and units may be inspected by application to Area Engineer, Soo Area, Corps of Engineers, Sault Ste. Marie, Michigan.

FOR SALE

Transactions of American Society Civil Engineers 1918 to 1931, 14 Vol. in ½ morocco 32, 33 & 35 to 45, 13 Vol. in paper binding. Bound Index 1867-1920.
If you want them make an offer
F. E. B.
194 Murray Ave. Larchmont, N. Y.

WANTED

WANTED TO BUY

End-Dump Euclids
Northwest 80-D and #6.
Shovels

New or very late models

A. L. DOUGHERTY CO.
Guaranty Bldg. Indianapolis, Ind.
Phone: Lincoln 3840

WANTED TO BUY

GANTRY type A Frame Crane that runs on rails on ground: minimum span between rails 24 feet; minimum lifting height 20 feet; 7½ to 10 ton capacity.

MID-SOUTH CONCRETE PIPE CO.
BOX 6833 HOLLYWOOD STATION
MEMPHIS, TENNESSEE

WANTED TO BUY
COMPLETE DRAG-LINE FRONT
for MARION 111M SHOVEL

R. S. CARLIN, Inc.
Snow Shoe, Pa. Telephone 4191

WANTED
Crane boom and fairlead
for
Linkbelt-Speeder LS-40, LS-50, and LS-51, Insley K-12, Northwest 25.

YOUNG CONST. CO.
4209 St. Joseph Ave. St. Joseph, Mo.

QUARRY AND MILL OPERATORS

Used Jaw Crusher Wearplates approximately 3 by 4 feet or larger wanted by:

WARREN FOUNDRY & PIPE CORP.
P. O. Box 392 Dover, New Jersey
Telephone: Dover 6-0369

TUNNEL EQUIPMENT

ELECTRIC LOCOMOTIVES, with extra batteries

3—Whitcombe, 10 Ton, 36" Gauge
6—Greenburgs, 11 Ton, 36" Gauge

MUCKING MACHINES

3—Eimco Rockershovels, Model 40
4—Conway-Muckers, Model 75

CARS

38—5 Cu. Yd. Side Dump, 36" Gauge

MISCELLANEOUS

2—Roots-Connersville Blowers, 7300 c.f.m.
3—40 K. W. Battery Charging Units
2—20 K. W. Battery Charging Units
16—Ingersoll-Rand DA 35, wet type, Drifter Drills
24—Ingersoll-Rand S 70 Motor Feed Drifters
10—Ingersoll-Rand No. 229 DJB Drill Booms
12000—lineal feet 24" Vent-Pipe, 14 Ga. Lock Joint
2—60 K. W. Diesel Generator Sets
Transformers, various sizes
Electric Cable
Electric Pumps, various sizes

Subject to Prior Sale

FRAZIER-DAVIS CONSTRUCTION CO.
1319 Macklind Ave., St. Louis 10, Mo. Sterling 1950
Grahamsville, New York, Box 153 Grahamsville 2861

CRANES

½ and ¾

Insleys—Lorains—Byers—Units—Osgood—P. & H.—Buckeye—Lima—NW 25—Linkbelt—
(As is) or reconditioned.

½ to 2 Cu. Yd.—
Drag & Clamshell Buckets
Wrecking 1000 Gl Trucks

THE ELLIS COMPANY
(Formerly Ellis-Novack Company)
2510 W. Empire St. Burbank, Calif.
ROckwell 9-2061

IMMEDIATE DELIVERY

Caterpillar D6, angledozer, Serial #9U1142
Caterpillar D6, angledozer, 410 hrs. new 1951
Caterpillar D8, Serial #2U4240
Caterpillar D8, new Sept. 1950, cable blade
International TD18A, new 1949, 2500 hours
International TD24, Serial #TDE1545, angle blade
MANITOWOC 3000A, diesel, Ser. #3024, new 1940
BAY CITY 65, Crane and Shovel, Ser. #4301
LINK BELT K45, diesel, Crane & Backhoe
ADAMS Grader, Model 511-12, diesel, Ser. #996, scarif.
JAEGER Air Compressor, 210 cfm, diesel, pneu tires, 1948
CHICAGO PNEUMATIC Air Compressor, 105 cfm, PG20, pneu tires
New ¾ yd. shovel front for Lorain 40 or 41
New ½ yd. backhoe for Lorain 30, 40 or 41
P & H 255A, ¾ yd., shovel front
2 yd., light dipper bucket
New ¾ yd. Blaw-Knox clamshell Bucket Size 672

R. A. PARKINSON & SON
519 N. Delaware Ave.,
Phila. 23, Penna.
MArket 7-2521 - MArket 7-0479

5 Yd Steam Powered Crane
60 Ton American Revolver R-25
50 Ton Colby Gantry Electric
5 to 50 Ton Derricks
20 Ton Lorain Truck Crane MC 414
Loco Crane 25 Ton Diesel 50 Ton Steam
Asphalt Plant Cedar Rapids "B" 3000#

STONE THE CRANE MAN
1132 PRUDENTIAL BLDG. BUFFALO 2, N.Y.

AIR COMPRESSORS
17 Diesel 315, 500, 630, 900 & 1500 Ft.
22 Elect. 676, 1080, 1302, 1730, 2200, 3178, 3865 Ft.
11 Low Pres. 442, 1080, 2200, 3000 & 4040 Ft.

CRANES — SHOVELS — DRAGLINES
7—Diesel & Steam Loco. Cranes—20, 25, 30 & 40 T.
9—25, 40, & 60 Ton Steam & Elec. Whirley Cranes.
2—41B Bucyrus 1-½ Yd. 60' Boom Steam Crane.
40 Ton Orton Diesel Locomotive Crane.
54B Bucyrus, 80B Northwest Diesel Shovels-Drags.

TUNNEL EQUIPMENT
33—Conway, Eimco & Gardner Denver Tnl. Shls.
26—Battery & Trolley Locomotives, 4, 6, 8 & 10 T.
266—Tunnel Cars, 1, 2, 4, 6 & 8 Yd. Cap.

RAILROAD CARS
161—Dump Cars 1½, 2, 3, 5, 10, 20 & 30 Yd. Cap.
96—10,000 Gal. Tank Cars—100 Box Cars.
128—40 & 50 Ton Flat Cars, 48—50 Ton Gondolas.

LOCOMOTIVES
17—Diesel 100, 80, 65, 30 & 10 Ton.
42—Gasoline 35, 25, 20, 16, 10 & 8 Ton.
9—Steam, 40, 50, 80 & 100 Ton

HOISTING ENGINES
STEAM: 14x12, 9x10, 8½x10 & 7x10.
ELECTRIC: 50, 40, 30, 25, 20, 15, 12½ & 150 H.P.
9—McKiernan Terry No. 5S, 5, 5, 6, 7, 9H3, 10H3, 8S, 11B3. Also Union No. 1.
Vulcan 800 & Vulcan #2 & 1-½ 5000.

PUMPCRETE
Model 160, 190 & 180 & 200 REX Pumpcretes.

STEEL DERRICKS
2—Clyde 15 ton Stiff Leg 100 & 125' Boom.
2—Terry 25 ton, 100' Boom Guy Steel Erectors.
3—7-10 Guy ST & 50 Ton 100'

STEEL STORAGE TANKS
17—10,000-15,000 & 25,000 & 42,000 gal. cap.

R. C. STANHOPE, INC.
Tel: MUrrayhill 2-3075 60 E. 42 St., N. Y.

2—DW10 CATERPILLAR TRACTORS
with
2—PD10 SIDE DUMP WAGONS
Used 700 Hours

12.00 x 20, 14-ply front tires
21.00 x 25, 20-ply tractor tires
14.00 x 20, 20-ply trailer tires

New January 1950—Excellent Condition

$30,000.00 for Both

L. B. SMITH, INC.
Camp Hill, Pa.

501 KOEHRING 1-1¼ YARD SHOVEL - CRANE - DRAGLINE

Serial #C-701, 45' Boom, 15' Jib, Shovel front like new, Fairleads, new 1¼ yd. Williams Clamshell Bucket, Wisconsin Model K, 6x7 Gas Engine, Capacity 40,000 lbs. at 12' radius. Excellent condition—Priced for quick sale.

King Paving Corporation
Schenectady 2, N. Y. Phone 4-7749

CONVEYORS

(Troughing)

104' centers, 10" wide belt.
24' centers, 10" wide belt.
13' centers, 10" wide belt.
56' centers, 16" wide belt.
37' centers, 16" wide belt.
175' centers, 18" wide belt.
300' centers, 18" wide belt.
29' centers, 18" wide belt.
96' centers, 30" wide belt.
50' centers, 42" wide belt.

Fuller Kinyon 4" Unit.
Apron 36"x34' centers.

HEAT & POWER CO., Inc.
70 Pine St.
Hanover 2-4890 New York 5
Machinery & Equipment Merchants

CLAMSHELL & ORANGE PEEL BUCKETS
Sizes: ⅝ to 2½ cu. yd. capacity.
Good used condition.

G. A. BASS Birmingham, Mich.

5—9FDT Euclid Bottom Dumps, 13 cu. yd. capacity, Cummins Diesel Engines. Machines are in excellent condition.

1—Caterpillar Grader, Model 112, Serial #9M890. Excellent condition.

VILBRO EQUIPMENT CO., INC.
233 North Ave., Westfield, N. J.

TRADE WITH BAUER
BUY - SELL - TRADE
your
COMPRESSOR
VACUUM PUMP
STEAM BOOSTER
L.W.BAUER
265 ESSEX AVE BLOOMFIELD, N.J.

IF there is anything you want
that other readers can supply—
OR . . . something you don't want—
that other readers can use—
Advertise it in the SEARCHLIGHT SECTION

CARLYLE
INDUSTRIAL RUBBER PRODUCTS FOR EVERY PURPOSE

IMMEDIATE DELIVERY OF CONVEYOR, ELEVATOR AND TRANSMISSION BELTING — FIRE, WATER, SUCTION, AIR, STEAM AND WELDING HOSE

WHY WAIT
We have 8 to 48

RUBBER CONVEYOR BELTING

TOUGH COVERS—Heavy duty, specially compounded abrasive resistant rubber covers having high tensile strength. Thoroughly capable of withstanding the abrasive action of bulk materials. Properly vulcanized to the carcass to assure utmost performance, economically.

STRONG CARCASS — Constructed of finest quality 28 and 32 ounce tough cotton duck, properly treated and impregnated to avoid mildew from moisture and atmospheric conditions. Each ply thoroughly embedded in rubber to prevent ply separation.

FLEXIBILITY — Careful attention has been given in the construction of all belts to have the proper flexibility assuring the following desirable features; troughs easily, runs true on all idlers, gauge resistant, excellent for long and short hauls and slope installations.

Avoid delays in your production schedules!

We carry in stock for your immediate requirements, Conveyor Belting in widths from 8 inches to 48 inches.

Width	Ply	Thickness Top Cover	Thickness Bottom Cover	Type of Duck Carcass
8"	4	1/16"	1/32"	28 Oz.
10"	4	1/16"	1/32"	28 Oz.
12"	4	1/16"	1/32"	28 Oz.
14"	4	1/16"	1/32"	28 Oz.
16"	4	1/8"	1/32"	28 Oz.
18"	4	1/8"	1/32"	28 Oz.
20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
24"	5	1/8"	1/32"	28 Oz.
26"	5	1/8"	1/32"	28 Oz.
30"	4	1/8"	1/16"	32 Oz.
30"	5	1/8"	1/16"	32 Oz.
30"	6	1/8"	1/16"	32 Oz.
36"	6	1/8"	1/16"	32 Oz.
42"	5	1/8"	1/16"	32 Oz.
48"	5	1/8"	1/16"	32 Oz.
48"	8	1/8"	1/16"	32 Oz.

INQUIRE FOR SIZES NOT LISTED
ELEVATOR TRANSMISSION & V-BELTING ALSO IN STOCK

All our belting made by the leading belting manufacturers.

Write for Free Booklet on Installation, Care & Maintenance of Conveyor Belting.

SEND US YOUR INQUIRIES FOR OTHER RUBBER PRODUCTS.

CARLYLE RUBBER CO., Inc.
62-66 Park Place, New York 7, N. Y.
Phone: Digby 9-3810

DIESEL GENERATOR SETS

A.C. UNITS

- **200 K.W.—G.M. 8-268A** Eight cylinder—6½" x 7" —1200 r.p.m.—440/3/60—with switchgear.
- **100 K.W.—G.M. 3-268A** Three cylinder—6½" x 7" —1200 r.p.m.—440/3/60—with switchgear.
- **30 K.W.—G.M. 3-71** Three cylinder—4½" x 5"—1200 r.p.m.—37.5 K.V.A.—220/440 volts—60 cycle—93 amps—4 wire—with panel board.

D.C. UNITS

- **100 K.W. SUPERIOR GBD8** 5½" x 7" — 120/240 volts D.C.—417 amps.—with switchgear.

Other Sizes Available — Inquiries Invited

OTHER ITEMS

- **2 DRUM SELF-CONTAINED ELECTRIC HOISTS**

SINGLE SPEED—7450 lbs at 220 F.P.M.

TWO SPEED—7450 lbs. at 220 F.P.M.
14,440 lbs. at 105 F.P.M.

Powered by 50 H.P.—230 volt—600 R.P.M. mill motors. Complete with all controls. One drum used for hoisting boom, other drum for topping. Drums located one in front of the other. Nigger-head on rear drum.

8—2 speed hoists—8 single speed hoists

WRITE — WIRE — PHONE

THE BOSTON METALS CO.

313 E. Baltimore St. CU 5050 **Baltimore 2, Md.**

EQUIPMENT FOR SALE

4—Ingersoll-Rand FM 2 x 71 WD Wagon Drills
1—Caterpillar D-7 Bulldozer
2—60 K.W. Diesel Generators
1—Model C Scoopmobile with 1 Yd. Bucket
1—2 Cu. Yd. Lima Crane & Shovel
1—1½ Cu. Yd. Lima Crane & Shovel
1—¾ Cu. Yd. Lorain Truck Crane
1—500 c.f.m. Ingersoll-Rand Portable Compressor
1—Oliver, Model 80, Rubber Tired Tractor
1—Parsons, Model 250, Trenchliner
1—Austin, Model 155, Trencher
1—Carr, Model A, Formgrader
2—Single Drum, 40 HP, Clyde Electric Hoists
1—Double Drum, 8¼ x 10, American Steam Hoist w/o Boiler

SUBJECT TO PRIOR SALE

FRAZIER-DAVIS CONSTRUCTION COMPANY
1319 MACKLIND AVE. ST. LOUIS 10, MO.
STerling 1950

Priced Right For Sale **QUARRY EQUIPMENT**

Consisting of: Shovels, Trucks, Screens, Power Units, Drilling Equipment, Crushers, Electric Motors, Generators, Conveyors, Miscellaneous Equipment

Located at Cedar Rapids, Iowa. Inquiries should be directed to:
G. R. SMITH
P. O. Box 790, or Telephone No. 4-0201 in Cedar Rapids, Iowa

STIFFLEG DERRICK
FOR SALE OR RENT

American heavy-duty model 3046-80; 80' boom, 46' mast, 40' sills, 16' bull wheel; capacity 52 T. at 38' and 35 T. at 78' radius; less than two years old. Immediately available. Bargain.

E. J. ALBRECHT COMPANY
2626 W. 26th Street, Chicago 8 Bishop 7-7575

FOR SALE
New belt for 9BV Euclid Loader
L. G. Defelice & Son, Inc.
Nettleton Avenue
North Haven, Conn.

PUMPCRETES
Rebuilt Current Models
For Sale or Rent
CONCRETE EQUIPMENT COMPANY
312 E. Wisconsin Ave.
Milwaukee 2, Wis.

FOR SALE

300 KW Portable Motor Generator Set
Motor: Synchronous, 450 horsepower, 2300, 4160, 6100 volts, 60 cycles, RPM 900
Generator: Output 120-240 DC volts, 3 wire with self contained filter system

For further information contact

D. J. TITUS
10521 Whipple St. North Hollywood, Calif.

DEPENDABLE USED MACHINES

Special—Lorain 40 comb. shovel and dragline, rebuilt in our plant. Come see it!

Phoenix 48" magnet	Hughes-Keenan Roustabout Crane	Bay City ½ yd. hoe
Hanson truck crane	Silent Hoist Krane Krawler	Wisconsin VF4 motor
Eagle coal crusher	All sizes clam & drag buckets	Erie 8" sand pump
Univ. 15x24 crusher	Cat. RD-7 with bulldozer, rebuilt	M-B street marker
Gruendler 10x36 crusher	New Pioneer 18"x100' conveyor	20x40 port. conveyor

For rent—cranes, draglines, backhoes, buckets, and all other accessories.

10002 Southwest Highway TRACTOR & EQUIPMENT CO. Oak Lawn, Illinois

Reconditioned

TOURNAPULLS & SCRAPERS

Immediate Delivery—Attractive Price

FOUR SUPER C CUMMINS ENGINES — ELECTRIC STARTERS — "L.P." 12-16 YD. SCRAPERS — GOOD RUBBER — JUST OUT OF OUR SHOP—SALE OR RENT WITH PURCHASE OPTION

RENTAL SERVICE CO.

4th & Courtland Sts. Philadelphia 40, Pa.

"36 Years of Service"

New, Domestic Steel

REINFORCING BARS

In Carload Lots

- $\frac{3}{8}$" x 20' x 40'
- $\frac{1}{2}$" x 20' x 40'

FOB Northern Illinois

Other sizes up to $1\frac{1}{4}$" x 20' x 40' can be furnished on request.

All steel quoted in conformity with CMP No. 98 price schedule.

Check our prices on all structural steel items before purchasing.

COMMERCIAL METAL CO.

1711 Ambassador Bldg. St. Louis, Mo.
Phone CEntral 4457

FOR SALE

Adnum Pavers (converted to stone spreaders), machines in nearly new condition, spread to 12 ft. Location New Jersey.

Three Wheel 10 Ton Galion, Buffalo-Springfield and Huber rollers gas or diesel engine.

Tandem 10 to 12 Ton Galion rollers, gas or diesel.

Two LeTourneau Model L P Scrapers 1800 x 24 tires. Located Meadville, Pa.; Swedesboro, N. J.

Caterpillar No. 12 Patrol, 9K Series. Located Meadville, Pa.

D-7 Tractor, 3 T Series. Located Portville, N. Y.; Swedesboro, N. J.

S.J.GROVES AND SONS COMPANY

19 Rector St., New York, N. Y.
WHitehall 3-1055

FOR SALE

Miscellaneous Items of Construction Equipment

All Located in the Two Carolinas. Will rent with purchase options to qualified parties.

2—Koehring 34 E Dual Drum Pavers with GMC Diesel Engines
2—RB Power Subgraders 20' to 25'
2—Blaw Knox Concrete Spreaders 20'—25'
1—Koehring Longitudinal Finisher 20' to 25'
2—Blaw Knox Model XC Finisher 20'—25'
1—Butler 250 Barrel Bulk Cement Bin with batcher
1—Barber-Greene Asphalt Finisher
4000 Ft. Blaw Knox 9" x 10" Forms
5000 Ft. Heltzel 9" Road Forms
Caterpillar D-6 with Traxcavator
Model 54 Wood Roadmixer
Lucey 104 Horse power Boiler
Cleaver Brooks 100 Horse power Boiler
Hopkins Low Pressure Burners with Electric motor
Forty Thousand Gallon bolted steel tank

BALLENGER PAVING COMPANY
P. O. Box 927
Greenville, South Carolina

GOOD USED EQUIPMENT

1—IHC Model TD24 Tractor with push block and Gar Wood Scraper Model 524. Scraper has two new tires.

1—IHC Model TD24 with Bucyrus-Erie Cable Dozer and Bucyrus-Erie Model 170 Scraper. Tires approximately 80% condition on scraper.

The above two units have less than 1500 hrs.

BODE FINN CO.

2650 Spring Grove Ave. Cincinnati 14, Ohio

PIPE

INT'L TD18 late Bulldozers—shop rebuilt
INT'L TD14 late Bulldozers—shop rebuilt
Northwest mdl. 8 Diesel Dragline—shop rebuilt
Lorain 820 Diesel 2 cy Shovel & 70' Dragline, practically new
Critical Caterpillar D8 and D7 parts

BENDIX MACHINERY CO., INC.
401 Broadway, New York 13 Tel: Canal 6-5693

FOR SALE—*Immediate Delivery*

C. I. Water Pipe A.W.W.A. Standard

BELL & SPIGOT—10 inch, 12 inch, 16 inch, 20 inch, 24 inch and other sizes
FLANGED PIPE— 4 inch, 6 inch, 8 inch, 10 inch, 12 inch

C.I. Water Pipe Fittings—B & S—and Flanged—All kinds and sizes

SOIL PIPE—EXTRA HEAVY—8 inch—10 inch 12 inch—16 inch

The above subject to prior sales

TAGCO, INC.

111 Front Street Hempstead, L. I., N. Y.
Tel.—Hempstead 2-5535 or 2-8857

FOR SALE

—315 Ingersoll-Rand Compressor Diesel Motor—4 stl. whls.—Like New.
Ingersoll-Rand Wagon Drill
3 Rubber tires—Type FM2—2 sets steel 6'—12'—18' and hose.

Total price $6250.00

1—Model 2000-B Manitowoc change-over assembly; (from dragline to dipper-front) includees 26 ft. boom—18 ft. sticks—$1\frac{1}{4}$ c.y. bucket—retract clutch shaft—and all chains, sprockets & guards.

Price $6000.00

McCARRICK BROS.

1700 E. Ridge Pike Box 291
Norristown, Pa. Phone 8-4231

FOR SALE

6—18 cu yd D. B. Euclids with Hydrotarders.

5—D8 Caterpillar Tractors

1—Model 21 Eimco Rocker Shovel Tunnel Mucker

1—160S Rex Pumpcrete with Pipelines, nearly new

HINMAN BROS. CONSTRUCTION CO.

17 W. 56th Ave. Denver 1, Colo.
P. O. BOX 2571

EST. 1904

DAVIDSON

PIPE COMPANY INC.

FORMERLY
ALBERT & DAVIDSON PIPE CORP.
ONE OF THE LARGEST STOCKS IN THE EAST

Seamless and Welded $\frac{1}{8}$" to 26" O.D.
All wall thickness Manufactured.
Specialty large sizes.
Cutting — Threading — Flanging — Fittings — Valves.

Call GEdney 9-6300

50th St. & 2nd Ave., B'klyn 32, N. Y.

SALE — RENT *Immediate Delivery*

1949 LORAIN L820 2 C.Y.

SHOVEL, CRANE, DRAGLINE, CLAMSHELL
HI-FRONT—CAT D13000—NEW AIR CROWD—LIGHT PLANT

145 W. 63 ST., N.Y.C. **CHEMICAL SERVICE CO.** MURRAY HILL 5-6826

STEEL

For Immediate Delivery

100 Tons 8" x 36# Bearing Piles
100 Tons 10" x 42# Bearing Piles
100 Tons 12" x 53# Bearing Piles
100 Tons 8" x 31# H-Beams
100 Tons 10" x 49# H-Beams
100 Tons 12" x 65# H-Beams

We can book above sizes in all other weights for shipment from mill.

We can also furnish from stock I-Beams, Channels, Angles, and Plates.

Contact us for all Structural Steel Items.

ALBRO STEEL COMPANY
47-29 VAN DAM STREET
LONG ISLAND CITY 1, N. Y.
STILLWELL 4-2720 DIRECT WIRE VIA
STILLWELL 6-5448 WESTERN UNION

FOR RENT

20-10 TON TO 25 TON CAPACITY

TRUCK CRANES

SECTIONAL BOOM LENGTHS TO 130 FEET

LIMA & P & H CRAWLER CRANES

30 TON TO 50 TON CAPACITY

SECTIONAL BOOM LENGTHS TO 175 FEET

THE ROGER SHERMAN TRANSFER CO.
EAST HARTFORD, CONN.

Branches: SPRINGFIELD, MASS. NEW HAVEN, CONN. ALBANY, N. Y.

40,000 gallon tank
50,000 gallon tank on 100 foot tower
100,000 gallon tank on 125 foot tower
WE BUY AND SELL
ALL SIZE TANKS AND TOWERS

Air Compressors
Guaranteed — Reconditioned
160-800 CFM, all very good condition
$1850 up

1200 CFM I. RAND Diesel driven, 350 RPM, rebuilt 1945, $9,950. Boiler, New Babcock & Wilcox, 800-1500 HP, high or low pressure, never used $10,000

EVEREADY SUPPLY CO.
E. J. McCallum, Jr.
805 Housatonic Ave. Bridgeport, Conn.
4-9471

FOR RENT

BAY CITY LIMA B-E

TRUCK CRANES

(1950-51 Models)

ALSO

1201 LIMA

Up to 120' Boom
Crane, Drag Combination

S.J.GROVES AND SONS COMPANY
19 Rector St., New York, N. Y.
WHitehall 3-1055

HELP! HELP! HELP!

NEW AND USED PARTS FOR SALE!

CATERPILLAR PARTS
all types!

POWER UNIT PARTS for:
Murphy, Climax
Waukesha, Case

SHOVEL PARTS FOR:
Lima 1201, Koehring
P & H, Hanson
Lorain, Bucyrus
Northwest, Trackson Loader

TRUCK PARTS FOR:
Chevrolet, Dodge
Ford, Mack

MISCELLANEOUS PARTS
Air Compressor, Chicago Pneumatic
Drill Parts, Gardner-Denver
Ingersoll Rand, Cleveland
Sullivan

Timken Drill bits & steel. Ty-Rock Vibrating Screen Parts. Anti-Friction Bearings. V-Belts of many lengths & sizes. Belt lacing, sprocket & sheaves. Roller chains, screen cloth. Manganese grates, hammers, liners for Williams & Dixie mills.

Many Parts New! All Useable!

Liberal discount
20% to 75% of list price!

Direct Inquiries to G. R. Smith,

CONCRETE MATERIALS & CONSTRUCTION CO.
Box #790, or Telephone 4-0201 in
Cedar Rapids, Iowa

Will send an itemized list.

SLIDING FORM EQUIPMENT

250 Steel Yokes Complete with
Jack Screws and all fittings.

CROSBY CONSTRUCTION CO.
185 North Wabash Avenue
Chicago 1, Illinois

FOR SALE
New Wire Rope Blocks

18" Single 20 Ton with S. Shackle $25.00
18" 3-Sheave 30 Ton with Shackle 50.00
18" 4-Sheave 30 Ton with Shackle 75.00
#32 Drop Forge Hooks, New 2.00

ABERTHAW COMPANY
133 Southampton St. Boston 18, Mass.

FOR SALE NEW
2—DIESEL ELECTRIC GENERATING UNITS

Caterpillar D-8800, 50 KW Continuous Rating. Mounted on steel base complete with radiator, control cabinet, silencer, electric starting and safety shut off devices.

Communicate with **Arthur C. Simmons**
Bradford, Penna. Box 191 Phone 3148

FOR SALE
Thew Steam Crane—1½ Yd.
50 H.P. Boiler, 55 Foot Boom
Low Price
THE BARBET COMPANY
1334 Sulphur Spring Road Halethorpe 27, Maryland

FOR SALE

American Whirley R-25. Oil Burning Steam, presently mounted on steel barge 100'x42'x12', offered as a unit or together with barge.

Steam piledriving hammers of all sizes.

4 Steam piledriving rigs.

Steam boilers and leads.

Rock drilling equipment.

Air Hoists.

G. A. BASS
Birmingham Theatre Bldg.
Birmingham, Michigan

For Sale:
(1) 11S Ransome Concrete Mixer.
Pneumatic Tires, Skip Loader, Water Tank.
(New Condition)
(1) Three ton Huber Tandem Roller.
(New Condition)
Wanted:
(1) P-H 255A Shovel or Back-Hoe.
(State condition and serial number.)

WHIPPANY CONSTRUCTION CO.
Hanover, New Jersey

FOR SALE
½ Yd. K-12 Insley CRANE & DRAGLINE
Good as New—Priced Right
FS-3522, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

FOR RENT or SALE

1—Lorain 82, 2 yd. combination—backhoe, dragline and shovel attachments. Completely rebuilt; equipped with Cat. 13000 engine.
1—Bucyrus-Erie, 37 B, 1½ yd. combination, backhoe, crane and shovel attachments; equipped with Cat. 13000 engine.
2—Cat. D-8 dozers, 2U series. Completely rebuilt.
1—LeRoi air compressor. Model 500; with Cat. 13000 Diesel.
1—LeRoi air compressor. Model 600 with Murphy Diesel. Both units five months old.
1—Schramm air compressor, 315 c.f. with Diesel engine; mounted on four steel wheels.
5—Oliver farm tractors, wide gauge on Caterpillar treads. Five months old.
1—Crescent Coal Washer. New. Will handle 90 tons per hour. Complete with new Shaker screens and motors.

ATTACHMENTS ONLY:

1—54B Bucyrus-Erie stripping front.
1—802 Lima stripping front.
1—3000 or 3500 Manitowoc stripping front.
1—820 Lorain, 2 yd. backhoe attachment.
1—38B Bucyrus-Erie, 1½ yd. backhoe attachment.
1—Bay City crane boom, 65 ft.
All above attachments like new and complete.
2—McCarthy boring machines complete with 6" augers.

Reply to:

TESTA BROS., INC.
925 Citizens Bldg., Cleveland 14, Ohio
TOwer 1-0558

Bridge Builders &
Material Handlers

3 MANITOWOC CRANES

FOR SALE

Valley 3161

V. P. SERODINO, Inc.
7 W. North Bend Rd.
CINCINNATI 16, O.

FOR SALE
Model 180 Single Pumpcrete
1000' of pipe and fittings
For Quick Sale—$5500.00
ABERTHAW COMPANY
133 Southampton St. Boston 18, Mass.
Phone Highlands 5-6700

Sturdevant 16-foot
AIR SEPARATOR
Complete with motor
In good condition and priced right.
Inquiries should be directed to:
G. R. SMITH
P.O. Box 790, or
Telephone No 4-0201 in Cedar Rapids, Iowa

PRE-2 AIR COMPRESSORS
5600 CFM 42 x 25½ x 30, 930 HP. SYN. 138-½ RPM
4750 CFM 40 x 24 x 27 804 HP SYN 150 RPM
3/60/2300 AND CONTROL EXCELLENT CONDITION
S. M. DAVIS
510 LaSalle St. St. Louis 4, Mo.

RAILS-TIES
TRACK ACCESSORIES

PILING

STEEL SHEET PILING

BELVAL Z
perfect range of corrugated sections most economical section modulus

AMERLUX STEEL PRODUCTS CO
NEW YORK 17, N. Y.

Direct Mill Office of the
ARBED
STEEL MILLS
IN LUXEMBOURG

BELVAL P *straight web section best deepest bearing*

RENT STEEL SHEET PILING

"Faster From Foster"—the exact lengths and sections—all standard makes—of Rental Piling to meet your job needs. Also Rent: Pile Hammers and Pile Extractors.

RAILS • TRACK ACCESSORIES • PIPE • WIRE ROPE
LB FOSTER Co.
Pittsburgh 30, Pa. New York 7, N.Y.
Chicago 4, Ill. Houston 2, Tex.

We do a Nation-Wide business in
STEEL SHEET PILING
IMMEDIATE SHIPMENT
167 pcs. 60 ft. Inland I-27—Illinois
232 pcs. 50 ft. Larssen 111 New—Florida
250 pcs. 39-35 ft. Carn. M-116—Tenn.
291 pcs. 30 ft. Beth. DP-2—New York
127 pcs. 25 ft. Carn. M-115—Missouri
Other lengths & sections used & new at other locations in United States for rent.
We have Nation-wide reputation for effecting QUICKEST SHIPMENTS
All sizes Vulcan & McKiernan Pile Hammers & Extractors for rent—Shop Rebuilt
Regardless of location of job, Wire, Write or Phone
MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., Chestnut 4474 St. Louis, Mo.

FOR SALE—LATE MODEL
22-B ¾ yd Shovel, 76800 series. Cat. diesel D-8 2U-9500 series 8A blade. DDPCU.
Bronkville 3½ ton 36" gauge locomotive.
Other ¾ to 4 yd Shovels—Draglines.
When ready to sell or buy good used equipment call—write
HAROLD W. HOOKER
Phone 1889 Ellwood City, Pa.

---

155 pcs. Larssen 1 Steel Sheet Piling 48'
120 pcs. Larssen 11 Steel Sheet Piling 48'
Write Wire Phone
ATLANTIC PILING CORP.
47-29 Van Dam St., Long Island City 1, N. Y.
Exeter 2-1286

WANT BUY
ALL SECTIONS
STEEL SHEET PILING
PILE HAMMERS & EXTRACTORS
DARIEN CORP.
60 E. 42nd St. New York 17, New York

You can always—
Count on Commercial
FOR COMPLETE STOCKS OF...

• BOLTS • SPIKES • SWITCHES • TIE PLATES

COMMERCIAL METALS COMPANY
BOX 1046 DALLAS, TEXAS

RAILS *New and Relaying*

TRACK MATERIALS AND ACCESSORIES CARRIED IN STOCK
SWITCH MATERIAL • SPIKES & BOLTS • TRACK TOOLS • TIES • TIE PLATES • BUMPERS • COMPLETE SIDE TRACKS
BUILDERS STEEL SUPPLY CO.
4201 WYOMING • P.O. BOX 188 • DEARBORN, MICH.

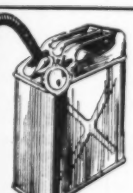
IMMEDIATE SHIPMENT
RAILS NEW RELAYING
SWITCH MATERIAL
ALL TRACK ACCESSORIES
MIDWEST STEEL CORPORATION
CHARLESTON 21, W. VA.

NEW—RAILS—Relayers
All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.
M. K. FRANK
480 Lexington Ave. Park Bldg.
New York, N. Y. Pittsburgh, Pa.
Reno, Nevada Carnegie, Pa.

BRAND NEW
U. S. ARMY
APPROVED

5 GALLON
JEEP CANS
Comp. With Spout

$3.50 EACH
F.O.B. Phila.



10 FOR $32.50 F.O.B. PHILA.

These cans are new and perfect, not to be confused with reconditioned or cheap imitations, same as used by U. S. Army. Ideal for outports, car, truck, boat, etc., as spare gas can, also store water and oil.

15 INCH FLEXIBLE POURING SPOUTS With Long Breather Tube and Flash Filter Fits Above Jeep Can

50¢ EACH
F.O.B. PHILA.

ESTABLISHED 1744

J. JACOB SHANNON & CO.
214 N. 22nd St., Phila. 3, Pa.
The Oldest Equip. House in Phila.

---

210 CFM SCHRAMM AIR COMPRESSOR

Serial #310348, B/M, #MF210, 4F1-J Model, 1210 RPM, Buda Gas engine drive, mounted on four tire trailer, run 2 hours since completely overhauled.

$2,500.00

AIR HOISTS

12 ea. INGERSOLL RAND, complete w/trolley and 25 ft cable, 4/6000 lb cap., radial four cylinder type. Excellent condition. $200.00 ea.

ELECTRIC CRANE

BAKER crane, mobile, 20 ft. boom, model CYA60, serial #7403, 3 ton cap., complete with battery and charger. Condition excellent. $2,500.00.

YALE STEEL TRAILERS

6 ea. 6000 lb cap. 6 ft long 40" wide, 4 steel wheels, both ends on turning pivots. Condition like new. $200.00 ea.

STEAM GENERATORS

CLEVER BROOKS, 70 HP, 15 lbs WP, Insulated, 10 months actual usage, complete with all necessary gauges, guaranteed inspection. $2,500.00.

MEDDIN PACKING COMPANY

Phone 5165 — **Savannah, Ga.**

Northwest 1 yd. combination SHOVEL and CRANE
Compressor truck mounted 105 Cu. ft. pumps trailer
S. F. PANDOLFO
3120 Main St. — Hartford, Conn.
Tel. 6-8345

FOR SALE—NEW STEEL

We can furnish your requirements for prompt delivery in Galvanized Steel Sheets, Imported, 16 gauge through 30 gauge, any sizes; domestic and imported REINFORCING RODS, ASTM 15/39, MILD GRADE, ⅜" through 1½" inclusive; cold rolled ROUNDS, I-BEAMS, H-BEAMS, PLATES, SHEETS, ANGLES, AND OTHER STEEL PRODUCTS, MOST ANY SIZES, ANY QUANTITY, WRITE

Box FS-3298, c/o Engineering News-Record,
330 West 42nd St., New York 36, N. Y.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names — *Additional cards on following pages*

Polk, Powell and Hendon

Engineers—Consultants
Harry H. Hendon—
Hugh A. Powell

Water Systems, Sewers and Sewage Treatment Plants, Steam and Hydro Plants, dams, drainage, industrial buildings, municipal planning reports, plans, estimates and construction supervision.

620 Chamber of Commerce Bldg.,
Birmingham 3, Ala.

Palmer and Baker, Inc.

Consulting Engineers—Architects
For Problems of Transportation
Subaqueous Vehicular Tunnels
Rock Tunnels
Utility Tunnels
Bridges
Grade Separations
Highways
Airports
Traffic Studies
Parking Problems
Waterfront & Harbor Structures
Complete Materials, Chemical and Soils Laboratories.

Mobile, Ala. - Houston, Tex.

John S. Cotton

Consulting Engineer
Hydroelectric, water supply, irrigation, and multiple purpose projects; flood and erosion control; river basin development planning; dams and their foundations; tunnels; marine structures; valuations; rates.
28 Brookside Dr., San Anselmo, Calif.

International Engineering Company, Inc.

ENGINEERS
Investigations - Reports - Design
Procurement - Field Engineering
Domestic and Foreign
74 New Montgomery St.,
San Francisco 5, California

Consult these Specialists:

Let them save your time by bringing their broad experience in their specialty to bear on your problems.

Heron Engineering Co.

Chemical, Mining, Industrial and Hydraulic Plants, Irrigation, Water Supply, Power and Sewerage Systems, Large Rockfill Dams, Airports, Oil, Gas and Water Pipe Lines.
2400 So. Acoma, Denver 10, Colorado
Chama, New Mexico

Duval Engineering & Contracting Co.

General Contractors
FOUNDATION BORINGS
For Engineers and Architects.
Jacksonville, Florida

Law-Barrow-Agee Laboratories, Inc.

Soils Engineers & Consultants
Soil Testing - Soil Boring - Rock Drilling—Load Testing—Field Control - Engineering Studies—Chemical Analysis - Physical Testing
Box 1558 Atlanta 1, Ga.
Serving the entire South

Patchen & Zimmerman

Engineers
Construction Plant, Cofferdams, Structures, Industrial Plants, Dams, Sewerage and Sewage Treatment, Water Supply and Treatment. Supervision, Surveys, Reports.
Augusta, Ga. — Anniston, Ala.

E. J. Albrecht Company

Engineers—Contractors
Steel, chemical and power plants, Dams, flood control projects, railroads, Bridges, tunnels, heavy excavation.
2626 West 38th Street, Chicago 9

Consoer, Townsend & Associates

Water Supply, Sewerage, Flood Control & Drainage, Bridges, Express Highways, Paving, Power Plants, Appraisals, Reports, Traffic Studies, Airports, Gas & Electric Transmission Lines.
351 East Ohio St., Chicago 11, Illinois

Alvord, Burdick & Howson

Charles B. Burdick
Louis B. Howson — Donald H. Marwell
Consulting Engineers

Water Works	Sewerage
Water Purification	Sewage Treatment
Flood Relief	Power Generation
Drainage	Appraisals

Room 1491
20 North Wacker Drive, Chicago

De Leuw, Cather & Company

CONSULTING ENGINEERS
Transportation, Public Transit and Traffic Problems

Industrial Plants	Grade Separations
Railroads	Expressways
Subways	Tunnels
Power Plants	Municipal Works

150 North Wacker Drive
Chicago 6, Ill.

70 McAllister Street
San Francisco 2, Calif.

Greeley and Hansen

Engineers
Water Supply, Water Purification
Sewerage, Sewage Treatment
Flood Control, Drainage, Refuse Disposal
220 S. State Street, Chicago 4

Harza Engineering Co.

Consulting Engineers
L. F. Harza
E. Monford Fuelk — Calvin V. Davis
Hydro-Electric Power Projects
Transmission Lines, System Management, Dams, Foundations, Harbor Structures, Soil Mechanics
400 W. Madison St., Chicago 6, Ill.

Hazelet & Erdal

CONSULTING ENGINEERS
Fixed Bridges, Movable Bridges, Industrial Plants, Expressways, Airports, Dams
Monadnock Block, Chicago 4, Ill.
Dixie Terminal Bldg., Cincinnati 2, O.
Commerce Bldg., Louisville 2, Ky.

Pioneer Service & Engineering Co.

Consulting and Design Engineers
Operations - - - Purchasing
Steam - - Hydraulic - - Gas
Public Utilities - - Industrials
231 So. La Salle St. — Chicago 4

Sargent & Lundy

ENGINEERS
Steam and Electric Plants
Utilities—Industrials
Studies—Reports—Design
Supervision
Chicago

Soil Testing Services, Inc.

Theo. W. Van Zelst — Carl A. Metz
John P. Gnaedinger
Soil Borings — Rock Coring
Engineering Testing of Soils
Soil & Foundation Reports
4520 W. North Ave. — Chicago 39

Wight and Company

Consulting Engineers
Airfields — Municipal Improvements
Sewage Disposal — Pavements — Drainage Surveys
1008 Curtiss St. — Downers Grove, Ill.

Jenkins, Merchant & Nankivil

Consulting Engineers
Municipal Improvements — Sewerage
Power Development — Water Systems
Traffic Surveys — Industrial Plants
Flood Control Recreational Facilities
Airports Investigations and Reports
805 E. Miller St., Springfield, Ill.

Chas. W. Cole & Son

Sewerage, Sewage Treatment, Industrial Wastes, Water Supply, Water Treatment, Airports, Industrial Buildings
Chas. W. Cole, Sr. Chas. W. Cole, Jr.
Ralph J. Bushee, M. J. McKisick
220 W. LaSalle, South Bend, Ind.

Stanley Engineering Company, *Consulting Engineers*

Airports - Drainage - Electric Power
Flood Control - Industrial - Rate Studies - Sewerage - Valuations - Water Works
Hershey Building, Muscatine, Ia.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on preceding and following pages

J. Stephen Watkins

J. Stephen Watkins G. B. Watkins
Consulting Engineers
Complete engineering field crews available for field surveys or construction layout work.
East High Street Lexington, Kentucky
Branch office 210 Heyburn Building, Louisville, Kentucky.

Whitman, Requardt and Associates

Engineers — Consultants

Civil — Sanitary — Structural
Mechanical — Electrical
Reports, Plans, Supervision, Appraisals
1304 St. Paul Street
Baltimore 2, Maryland

Chas. T. Main, Inc.

Engineers
Design and Supervision of Construction for Industrial Plants
Electrical, Steam and Hydraulic Engineering
Investigations, Reports and Appraisals
Chamber of Commerce Bldg.
80 Federal St., Boston, Mass.

Metcalf & Eddy

ENGINEERS
Investigations Reports Design
Supervision of Construction and Operation
Management Valuation Laboratory
1300 Statler Building, Boston 16

Philip B. Streander and Affiliates

Consulting Sanitary Engineers
Water Supply Treatment, Distribution
Sewage, Sewage Treatment
Plans, Supervision, Reports
132 Nassau St. New York 7, N. Y.
683 Atlantic Ave. Boston 11, Mass.

Faulkner & Orpin

Engineering Consultants
Civil, Mechanical and Electrical
Market Consultants
80 K Street Kings Terminal
South Boston 27, Mass. SO. 8-2903

Black & Veatch

Consulting Engineers

Water - Sewage - Electricity - Industry

Reports, Design, Supervision of Construction, Investigations, Valuation and Rates.

4706 Broadway, Kansas City 2, Mo.

Burns & McDonnell

Consulting and Designing Engineers

P. O. Box 7088, Kansas City, 2, Mo.
1404 E. 9th St., Cleveland, 14, Ohio

Harrington & Cortelyou

Consulting Engineers
Frank M. Cortelyou
E. M. Newman F. M. Cortelyou, Jr.
Movable and Fixed Bridges of All Types, Foundations, and Related Structures.
1004 Baltimore Kansas City 6, Mo.

Russell and Axon

Consulting Engineers
Civil — Sanitary — Structural
Industrial — Electrical
Rate Investigations
408 Olive St. St. Louis 2, Mo.
Municipal Airport Daytona Beach, Fla.

Sverdrup & Parcel, Inc.

Consulting Engineers
Bridges, Structures and Reports, Industrial and Power Plant Engineering
Syndicate Trust Bldg., St. Louis 1, Mo.
220 Bush St., San Francisco 4, Calif.

William J. Wenzel

Consulting Engineer

Great Falls, Montana

Developing the Great Northwest

Edwards, Kelcey & Beck

Reports, Design Supervision, Express-ways, Port & Harbor Works, Terminals, Tunnels, Bridges, Water Supply, Industrial Plants, Traffic and Management Studies.
3 William Street 250 Park Avenue
Newark 2, N. J. New York 17, N. Y.

W. W. Slocum & Co.

ENGINEERS
Industrial - Design - Management
National Newark Building
744 Broad St., Newark 2, N. J.

Frank E. Harley and Associates

Consulting Engineers
Design, Surveys, Plans and Construction Highways, Sewerage and Sewage Treatment, Water Supply and Purification, Municipal Problems.
Harley Bldg., 200 Godwin, Wycoff, N. J.

Benjamin L. Smith & Associates

Engineers
Investigations—Reports
Designs—Supervision—Valuations
Municipal Engineering and Public Utilities
11 North Pearl St. Albany 7, N. Y.

Lester Associates, Inc.

Designers and Manufacturers of
Training Devices — Visual Aids
Industrial Planning Models
Animated Flow Charts — Relief Maps
Brochure on Request
Haddam-on-Hudson, N. Y.
HAddings 5-4454—4828

E. Lee Heidenreich, Jr.

Consulting Engineer
Quarries Plant Layout
Crushing Plants Design
Milling Plants Appraisals
75 Second St. Newburgh, N. Y.
9 So. Clinton St. Chicago 6, Ill.

Ammann & Whitney

Consulting Engineers
Design — Supervision
Bridges, Buildings, Industrial Plants, Special Structures, Foundations, Airport Facilities, Expressways.
76 Ninth Avenue, New York 11, N. Y.
724 E Mason Street, Milwaukee 2, Wis.

Barker & Wheeler

Water Supply — Utility and Industrial
Sewerage — Valuations
Sewage Disposal — Reports
Power Systems
New York City, 11 Park Place
Albany, N. Y. 36 State St.

Clinton L. Bogert Associates

Consulting Engineers
Water and Sewage Works
Refuse Disposal Industrial Wastes
Drainage Flood Control
624 Madison Ave., New York 22, N. Y.

Bowe, Albertson & Associates

Engineers
Water and Sewage Works—Industrial Wastes—Refuse Disposal—Municipal Projects—Airfields—Industrial Buildings — Reports — Designs — Estimates —Valuations—Laboratory Service
110 William St., New York 7, N. Y.

Francis L. Brown Harold A. Blauvelt

CONSULTING ENGINEERS
Limited Access Highways, Parkways and Expressways
Airports, Dams, Bridges, Site Planning Industrial Plants, Water Supply Sewers, Sewage and Refuse Disposal Preliminary Reports, Design and Supervision of Construction
Soils and Concrete Testing, Material Controls
Tax Maps, Surveying, Municipal Engineer Services
46 Cedar Street, New York 5, N. Y.
111 Ross Street, Pitts., Pa.
2700 Bridge Plaza South, Long Island City 1, N. Y.

Buck, Seifert & Jost

Consulting Engineers
(Formerly Nichols S. Hill Associates)
Water Supply — Sewage — Hydraulic Developments, Reports and Valuations.
Chemical and Biological Laboratories.
New York City, 113 E. 19th St.

Ebasco Services Inc.

ENGINEERS
CONSTRUCTORS
BUSINESS CONSULTANTS

Design and Construction
Financial and Operating Consultation
Investigations and Reports
Consulting Engineering

Two Rector Street New York
209 S. LaSalle Street Chic. 4, Ill.
1604 K Street, N.W. Wash. D. C.

Fay, Spofford & Thorndike

Engineers
Charles M. Spofford Ralph W. Horne
John Ayer William L. Hyland
Bion A. Bowman Frank L. Lincoln
Carroll A. Farwell Howard J. Williams

Bridges and Industrial Plants
Water Supply and Sewerage Works
Port and Terminal Works Airports

Valuations, Investigations, Designs, Supervision of Construction.

11 Beacon St., Boston, Mass.
420 Lexington Ave., N. Y.
(Graybar Bldg.)

Foster-Wachter

Consulting Engineers
Design — Supervision — Reports — Inspection of overhead CABLEWAYS and Special Hoists for handling concrete and materials for Dam Construction and other projects. 55 West 42 St. —NYCity—Suite 1540.

The Fraser-Brace Companies

Design Engineers and Constructors
Electro-smelting & Refining
Chemical & Process Industries
Industrial Plants—Pulp & Paper Mills
Dams & Hydro-electric Developments
Heavy Foundations—Port Facilities
10 E 40 St. 360 St James St W
New York 16 Montreal, Can.

Freyssinet Company, Inc.

Prestressed concrete structures:
Industrial Buildings
Bridges
Waterfront & Harbor Structures
Storage Tanks
Underpinnings

Estimates, tests, reports, design and supervision

57 William Street, New York 5, N. Y.

Hazen and Sawyer

Engineers
Richard Hazen Alfred W. Sawyer
Municipal and Industrial Water Supply Purification and Distribution, Sewage Works and Waste Disposal
Investigations, Design, Supervision of Construction and Operation
110 East 42nd St., New York 17, N. Y.

Frederic R. Harris, Inc.

CONSULTING ENGINEERS
F. H. Dechant, E. J. Quirin,
E. H. Harlow
Harbors, Piers & Bulkheads, Drydocks, Foundations, Soil Mechanics.
Sanitary & Industrial Waste Disposal
Water Supply, Flood Control.
Airports, Highways, Bridges.
Power, Industrial Plants, Buildings
27 William Street New York
3 William Street Newark
Fidelity Phila. Trust Bldg. Philadelphia
Ferry Bldg. San Francisco

Hardesty & Hanover

Consulting Engineers
Successors to Waddell & Hardesty
Bridges
Long Spans of All Types
Movable—Lift, Bascule and Swing
Hanover Skew Bascule
Steel and Concrete Spans
Grade Crossing Eliminations
Other Structures
Foundations
Supervision, Reports, Appraisals
101 Park Avenue, New York 17, N. Y.

Howard, Needles, Tammen & Bergendoff

Consulting Engineers
Bridges and Structures
New York, N. Y., 55 Liberty St.
Kansas City, Mo., 921 Walnut St.

Knappen-Tippetts-Abbett-McCarthy

Engineers
Ports, Harbors, Flood Control, Power, Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.
62 West 47th Street, New York City

Modjeski and Masters

Consulting Engineers
Design, Supervision, Reports,
Inspection and Investigations, of
Bridges, Structures, and Foundations.
535 Fifth Ave. State Street Bldg.
New York, N. Y. Harrisburg, Penna.

Moran, Proctor Mueser & Rutledge

Consulting Engineers
Foundations for Buildings, Bridges and dams; Tunnels, Bulkheads, Marine Structures; Soil Studies and Tests; Reports, design and supervision.
New York 17, N. Y., 420 Lexington Ave.
PARDO, PROCTOR, FREEMAN & MUESER
Ap. Corrfos 614 Caracas, Venezuela

Parsons, Brinckerhoff, Hall & Macdonald

ENGINEERS
Airports, Bridges, Tunnels, Highways, Traffic and Transportation Reports, Subways, Foundations, Harbor Works, Valuations, Power Developments, Industrial Buildings, Dams, Sewerage, Water Supply.
51 Broadway, New York 6, N. Y.

Malcolm Pirnie Engineers

Civil & Sanitary Engineers
Malcolm Pirnie Ernest W. Whitlock
G. G. Werner, Jr.
Investigations, Reports, Plans, Supervision of Construction and Operations.
Appraisals and Rates
25 W. 43rd St., New York 18, N. Y.

QUICK solutions to your technical problems are available through these consultants. Think first of the Professional Services Section of your publication when considering calling in an expert.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on preceding pages

The Pitometer Company

Engineers

Water Waste Surveys
Trunk Main Surveys
Water Distribution Studies
Water Measurements & Special Hydraulic Investigations

New York, 50 Church St.

Alexander Potter Associates

Consulting Engineers

Water Works, Sewerage, Industrial Waste, Hydraulic Works, Reports, Designs, Appraisals.

50 Church St., New York, N. Y.

Clyde Potts Assoc.

Weston Gavett-Stanley N. Williams

Consulting Sanitary Engineers

Sewerage and Sewage Disposal
Water Works and Water Supply
Valuations and Appraisals

39 Church Street, New York 7

Sanderson & Porter

Engineers and Constructors

New York • Chicago • San Francisco

Scheidenhelm, F. W.

Consulting Engineer

Hydraulic Engineering; Hydro-electric Development; Water Supply; Flood Control; Engineering Problems relating to Water Rights and Water Power Law; Appraisals. 50 Church Street, New York 7, N. Y.

Seelye Stevenson Value & Knecht *Consulting Engineers*

MANUFACTURING PLANTS
Plans, Specifications, Field Supervision, Reports, Valuation.

HEAVY ENGINEERING
Airports, Paving, Bridges, Stadia, Dams, Water Supply, Sanitation, Tunnels, Piers, Harbors, Industrial Waste Disposal.

STRUCTURAL
Skeleton Buildings, Foundations, Soil Studies, Concrete Control, Underpinning.

MECHANICAL - ELECTRICAL
Steam and Electric Generating Plants, Heating, Air-conditioning, Refrigeration.

101 Park Ave. New York 17, N. Y.

Severud-Elstad-Krueger

Consulting Engineers

Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Avenue
New York 17, N. Y.

Singstad & Baillie

Consulting Engineers

Ole Singstad David G. Baillie, Jr.

Tunnels, Subways, Highways
Foundations, Parking Garages

24 State St. New York 4, N. Y.

Frederick Snare Corporation

Engineers—Contractors

Harbor Works, Bridges, Power Plants, Dams, Docks and Terminals.
Difficult and Unusual Foundations A Specialty.

233 Broadway, New York City 7

Havana, Cuba Lima, Peru
Bogota, Colombia, Caracas, Venezuela, San Juan, Puerto Rico, Guayaquil, Ecuador.

Taylor, Henry W.

Water Supply, Sewerage
Garbage Disposal, Incineration
Industrial Wastes Disposal
Hydraulic Developments

11 Park Place, New York City

When you need a SPECIALIST in a hurry . . .

Engineering News-Record's Professional Service Section offers the quickest, most direct method of contacting consultants who may be available NOW.

D. B. Steinman

Consulting Engineer

BRIDGES
Design, Construction, Strengthening, Investigations, Reports, Advisory Service

117 Liberty St., New York 6, N. Y.

The J. G. White Engineering Corporation

Design—Construction
Reports—Appraisals

80 Broad Street, New York 4

Schuerman & Frost

Engineers

Buildings and structures, heating and ventilating, water supply, sewerage, appraisals, design, supervision, surveying.

54 Market Street, Poughkeepsie, N. Y.

Keis & Holroyd

Consulting Engineers

Formerly Solomon & Keis
Since 1906
Water Supply, Sewage Disposal, Garbage & Refuse Incineration, Industrial Buildings

Troy, N. Y. Ft. Lauderdale, Fla.

Gustave M. Goldsmith

Consulting Engineer

General Structures
Plant Layout
Design — Investigation — Quantity Surveys

1734 Bella Vista, Cincinnati 37, Ohio

The Austin Company

Design and Construction

Manufacturing and Process Plants
Airports & Air Transport Buildings
Railroad Terminals and Facilities
Power Plants—Industrial & Institutional
Industrial Office Buildings and Laboratories
Reports and Plant Location Surveys

New York CLEVELAND Los Angeles
Chicago Houston Oakland
Detroit Seattle

Havens and Emerson

W. L. Havens C. A. Emerson
A. A. Burgess F. C. Tolles F. W. Jones
W. L. Leach H. H. Moseley J. W. Avery

CONSULTING ENGINEERS
Water, Sewerage, Garbage, Industrial Wastes, Valuations—Laboratories

Leader Bldg. Woolworth Bldg.
Cleveland 14 New York 7

Burgess & Niple

Civil and Sanitary Engineers
Consultants since 1908

Water supply, treatment and distribution
Sewage and industrial wastes disposal
Investigations, reports, appraisals, rates
Plant operation, laboratory, plans and specifications.

584 E. Broad St. Columbus 15, Ohio

Jones, Henry & Schoonmaker

(formerly Jones & Henry)

Consulting Sanitary Engineers

Water Works, Sewerage & Treatment
Waste Disposal
Security Building Toledo 4, Ohio

Toledo Testing Laboratory

Engineers—Chemists

Inspection Tests
Research Development
Concrete - Asphalt - Soils - Ceramics
Foundation Investigation
Borings Diamond Drilling
Load Tests

1810 North 12th St. Toledo 2, Ohio

Glancy & Carle

Engineers

Steel & Concrete Structures
Industrial, Commercial Buildings
Design, Supervision, Reports
1506 Market Street, Youngstown, Ohio

Benham Engineering Co.

ENGINEERS

Webster L. Benham David B. Benham
M. Am. Soc. C. E.

Water Supply & Purification, Sewerage, Sewage Disposal, Electric Light & Power, Roads, Drainage

Am National Bldg., Oklahoma City, Okla.

Loedding Engineering Co., Inc.

Consulting Engineers

Design and Detail
Industrial and Commercial Planning
Bridges, Material Handling
Structures of all Types
Reinforced Concrete and Foundations

500 Merchant St., Ambridge, Penna.

Capitol Engineering Corporation

Engineers—Constructors—Management

Bridges Dams
Planning Airports
Sewage Systems Water Works
Design and Surveys Roads & Streets
Executive Offices Dillsburg, Penna.

Gannett Fleming Corddry & Carpenter, Inc.

ENGINEERS

Water Works, Sewage, Industrial Wastes & Garbage Disposal — Roads, Airports, Bridges & Flood Control, City Planning, Traffic & Parking, Appraisals, Investigations & Reports.

Harrisburg, Pa.

Branch Offices
Scranton, Pa. Pittsburgh, Pa.
Medellin, Colombia, S. A. Daytona Beach, Fla.
Havana, Cuba.

Myers-Richardson Associates

Consulting Engineers

Power Plants, Industrial Buildings and Facilities, Municipal Planning, Water, Sewage and Industrial Waste Problems, Investigation and Reports, Construction Supervision.

11 E. Airy St. Norristown, Pa.

Aero Service Corporation

Photogrammetric Engineers

Aerial Topographic Maps
Precise Photo Mosaics
Plastic Relief Models

236 E. Courtland St.,
Philadelphia 20, Pa.

Albright & Friel, Inc.

Consulting Engineers

Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators, Power Plants, Industrial Buildings, City Planning, Reports, Valuations, Laboratory.

121 So. Broad St., Philadelphia 7, Pa.

Day & Zimmermann, Inc.

Engineers

Designs, Construction, Valuations
Reports and Management
Public Utilities and Industrials

New York Philadelphia Chicago

Frederick H. Dechant

Consulting Engineer

Chairman of the Board,
Frederic R. Harris Inc.
Water Works, Industrial Wastes, Sewerage, Recovery Processes, Hydraulic Works, Gas Plants

Philadelphia: Fidelity Phila. Trust Bldg. New York: 27 William St.

Fridy - Gauker - Truscott & Fridy

Architects & Engineers

Water . Sewerage . Industrial Waste
Incineration . Power & Distribution
Airport . Building . Town Planning

1321 Arch Street . Philadelphia 7, Pa.

G. G. Greulich

Consulting Engineer

Investigations, Reports, Advice. Pile Foundations, Sheet Piling, Cofferdams, Bulkheads, Piers, Bridge Decks, Bank Vaults.

1346 Connecticut NW 778 Osage Rd.
Washington 6, D. C. Pittsburgh, Pa.

Hunting, Larsen & Dunnells, *Engineers*

Industrial Plants—Warehouses, Office and Commercial Buildings, Steel and Reinforced Concrete. Design and Supervision. Reports.

1150 Century Bldg., Pittsburgh, Pa.

Morris Knowles Inc.

Engineers

Water Supply and Purification, Sewerage and Sewage Disposal, Valuations, Laboratory, City Planning.

Pittsburgh, Pa.

Gilbert Associates, Inc.

Engineers and Consultants

Design and Supervision of
Steam, Hydro, Water Supply,
Sewage Disposal, Diesel Plants
and Airports, Valuations, Laboratory

Reading, Pa. 412 Washington St.
New York 61 Broadway
Houston Oil & Gas Building
Washington, D. C. 1417 K St., N. W.

Michael Baker, Jr., Inc.

The BAKER ENGINEERS, Civil Engineers, Planners, and Surveyors, Municipal Engineers, Airport Design, Highway Design, Sewage Disposal systems, Water Works Design and Operation, City Planners, All Surveys.

Home Office: Rochester, Pa., Branch Offices: Jackson, Miss., Harrisburg, Pa.

Myers & Noyes & Associates

Consulting Engineers

Water Supply, Sewage, Flood Control, Shore Protection, Irrigation and Reclamation, Reports and Valuations

2204 Tower Petroleum Bldg., Dallas, Texas
320 Wilson Building
Corpus Christi, Texas

Lockwood & Andrews

Consulting Engineers

Airports, Paving, Industrial Plants, Drainage & Sewerage, Site Locations, Soils & Foundations, Water Supply, Structures, Harbor Works, Valuations, Reports — Design — Supervision

Union Nat'l Bank Bldg., Houston, Tex.

Hutchings & Milani, Ltd.

Engineers & Constructors

Industrial - Roads - Power Plants - Dams - Tunnels - Harbor Works - Foundations - Hotels

CARIBBEAN WEST INDIES - SOUTH AMERICA
BERMUDA-CARIBBEAN CONSULTANTS, LTD.
Architects & Engineers.

Design - Reports - Investigations

L. C. Milani, ASCE; C. W. Abbott, A.I.B.A.; N. F. Senesay, A.I.A.; P. Coller; T. F. Carr; H. J. Williams; S. H. Pace; W. Weir.

BOTH HEAD OFFICES AT HAMILTON, BERMUDA.

Atlantic, Gulf and Pacific Company of Manila

Engineers
Design - Construction
Inquiries invited for work in the Philippines and Far East.
P. O. Box 629, Manila, Philippines
Cable Address: DREDGING Manila

Inspecting and Testing

Robert W. Hunt Co.

Inspecting and Testing Engineers

Inspection and Tests of Engineering Materials
Machinery and Equipment
Supervision of Construction of Structures

General Offices and Laboratories
175 West Jackson Boulevard Chicago 4
New York — Pittsburgh — St. Louis
San Francisco—Los Angeles—Seattle

Johnson Soils Engineering Laboratory

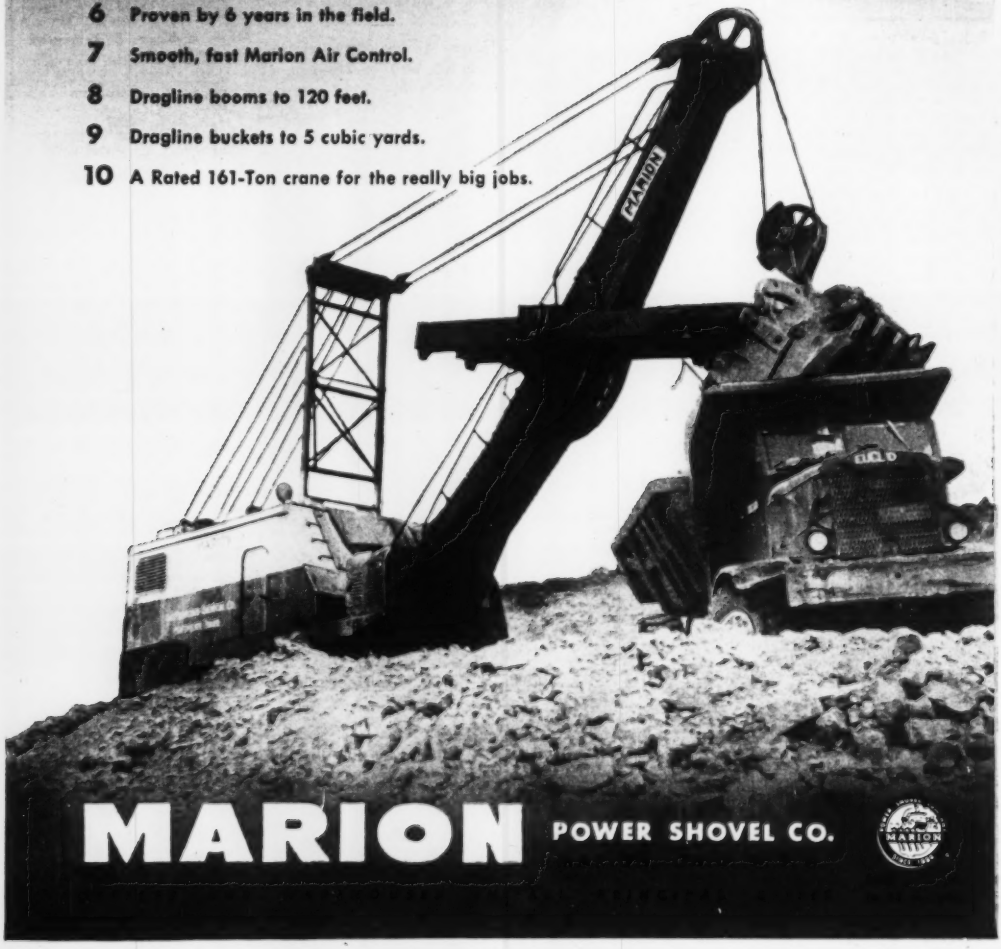
Engineering design and construction tests run from MOBILE LABORATORY UNITS at construction site.
Field load bearing tests.
193 West Shore Ave., Bogota, N. J.
Bogota-Hubbard 7-4408

ELECTRIC FEATURES That Really Count!

Get them in the

MARION 111-M

1. Four cubic yard dipper capacity.
2. Electric swing on a diesel machine.
3. All-electric if desired.
4. Ships on two rail cars.
5. Ideal companion equipment of big haulage units.
6. Proven by 6 years in the field.
7. Smooth, fast Marion Air Control.
8. Dragline booms to 120 feet.
9. Dragline buckets to 5 cubic yards.
10. A Rated 161-Ton crane for the really big jobs.



MARION POWER SHOVEL CO.

P&H MAGNETORQUE* is the electric swing that never wears out

Just what does Magnetorque mean to you in this great 2½ yd. shovel? Simply this: It eliminates the old swing frictions with their constant headaches and replacement costs. It gives you the smoothest, slickest swing you ever saw—15% to 25% faster than any other machine of its size—and Magnetorque will last the life of your machine.

Add to this the rugged, rock-rated construction of welded high tensile steels—the smooth hydraulic control—the greater stability and digging power—and you have the greater output which means greater profit. Better get all the facts about this outstanding machine—companion to the famous P&H 1055 (3½ yds.). Ask about the P&H 955-A today.

*T.M. of Harnischfeger Corporation for electro-magnetic type clutch.

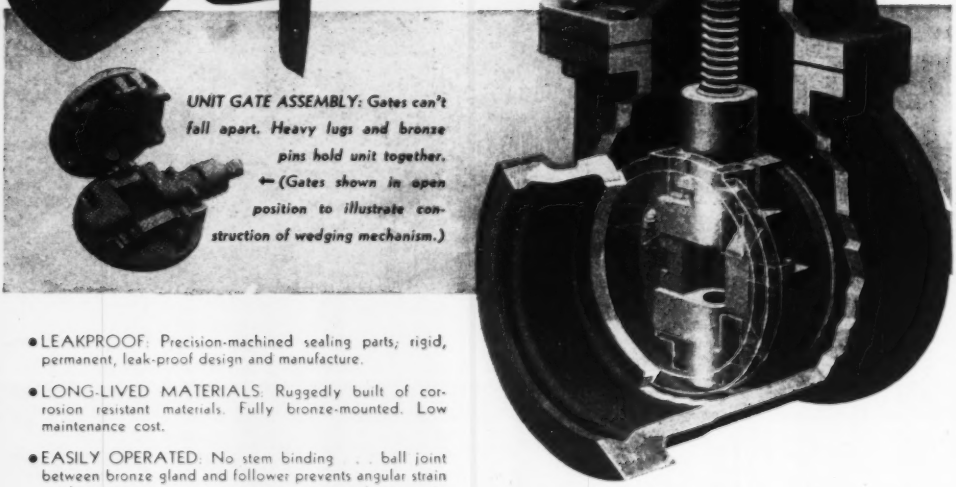
HARNISCHFEGER
CORPORATION
4404 W. NATIONAL AVENUE • MILWAUKEE 14, WISCONSIN

POWER SHOVELS • CRAWLER AND TRUCK CRANES • OVERHEAD CRANES • HOISTS • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • DIESEL ENGINES • PRE-FAB HOMES

MUELLER®

GATE VALVES

Superior



UNIT GATE ASSEMBLY: Gates can't fall apart. Heavy lugs and bronze pins hold unit together. ← (Gates shown in open position to illustrate construction of wedging mechanism.)

- LEAKPROOF: Precision-machined sealing parts, rigid, permanent, leak-proof design and manufacture.
- LONG-LIVED MATERIALS: Ruggedly built of corrosion resistant materials. Fully bronze-mounted. Low maintenance cost.
- EASILY OPERATED: No stem binding . . . ball joint between bronze gland and follower prevents angular strain on the stem.
- EASY TO REPACK: Can be repacked in either opened or closed position without water loss.
- DISCS PROTECT SEATS: Discs automatically retract before rising . . . won't scratch precision machined valve seats.
- PERMANENTLY ALIGNED DISCS: Discs can't spring out of shape. Wedging pressure applied at outer edges for perfect seal.
- BUILT TO A.W.W.A. SPECIFICATIONS: Designed and built to exceed the requirements of the American Water Works Association specifications.
- VARIETY OF STYLES, SIZES: Rising or non-rising stem types. Variety of ends. With bevel or spur gearing, if desired. Sizes from 2" to 42".

MUELLER CO. manufactures a wide variety of equipment especially designed for the Water Works Industry. This includes a full line of distribution equipment and specialties. Nearly a century of experience has proved that you can depend on any product that bears the Mueller name. Contact your Mueller representative, or write direct.

MUELLER CO.

Dependable Since 1857

MANUFACTURERS' PUBLICATIONS

Heat machines—Fageol heat machines are independent, self-contained portable heating units that utilize the most economical method of heat transfer and direct heat circulation. No ducts or oil pipes are required. Simply plug the heat machine into any regular electrical 110-v outlet and a large capacity gun-type pressure-atomizing oil burner is set into motion. It operates on No. 1, 2, or 3 fuel oil or kerosene. Room air is drawn in by a blower at the top of the unit and is forced down over and around the heat exchanger. It is heated instantly and then blown out directly and gently at floor level. The unit is also recommended for pre-heating tractors, power shovels, and any type of construction machinery, as well as for drying, treating or curing plaster, paint, concrete or new concrete pour. FAGEOL HEAT MACHINE CO., 5725 MT. ELLIOTT AVENUE, DETROIT 11, MICHIGAN.

Clay products—This handy 90-page booklet, spiral-bound, describes everything in the clay products line from sewer pipe and flue linings to vitrified pipe and fire brick. The compact pocket-size booklet includes net prices on all types of clay products. For clarification all types, sizes and shapes are shown by illustration. Full of interesting tables, it is available from UNIVERSAL SEWER PIPE CORPORATION, CLEVELAND, OHIO.

Precision instruments—Along with the company's complete and long-established line of portable and stationary gages for measuring positive or differential pressure, vacuum, velocity, temperature of gases, etc., are the new precision instruments made by the Dwyer Mfg. Co. They include a new type slack tube manometer, Visi-Float air filter gages, hook and smoke gages. Highly illustrated with pictures and drawings, the booklet is available from F. W. DWYER MFG. CO., 317 S. WESTERN AVENUE, CHICAGO 12, ILLINOIS.

Portable Heavy-Duty Hoisting Machine—Here is a 4-page folder showing how a Buck hoisting machine is towed easily with a pickup truck, unfolded like a jackknife, erected by its own mechanism from horizontal to vertical position in two minutes eleven seconds, and able to safely hoist a full 2,000 lb. load at the rate of 100 ft per min. Step-by-step erection photos are included. BUCK EQUIPMENT CORPORATION, 205 BUTLER STREET, CINCINNATI, OHIO.

ADVERTISERS IN THIS ISSUE

Albert Pipe Supply Co. ... 98
Aluminum Co. of America ... 62
American Bitumuls & Asphalt Co. ... 22
Amer. Cast Iron Pipe Co. ... 142
Amer. Foreign Ins. Assn. ... 49
American Steel & Wire Co. ... 84, 85
American Tubular Elevator Co. ... 14
Armco Drainage & Metal Products Inc. ... 20

Bay City Shovels, Inc. ... 38
Bethlehem Steel Co. ... 54
Blaw Knox Div., Blaw Knox Co. ... 68
Bruning Co., Inc., Charles ... 93
Brunner & Lay, Inc. ... 106
Brunson Instrument Co. ... 105
Buchanan Lumber Co. ... 106
Bucyrus-Erie Co. ... 15
Buff & Buff Mfg. Co. ... 106

Carver Pump Co. ... 102
Cast Iron Pipe Research Assoc., Inc. ... 66, 67
Caterpillar Tractor Co. ... 16
Ceco Steel Products ... 137
Cement Gun Company ... 100
Chicago Bridge & Iron Co. ... 2nd Cover
Cleaver Brooks Company ... 18
Concrete Surfacing Machinery Co. ... 118
Continental Steel Corp. ... 103
Coxhead Corp., Ralph C. ... 71
Cummins Engine Co. ... 70

Du Pont de Nemours & Co., Inc., Finishes Div. ... 119

Eastman Kodak Co. ... 57
Electric Tamper & Equipment Co. ... 56
Euclid Road Machinery ... 7

Fabreeka Products Co. ... 46
Fate-Root-Heath Co. ... 51
Fenestra Building Products ... 94
Flintkote Co., The ... 96
Fruehauf Trailer Co. ... 75
Fuller Mfg. Co. ... 87

Granco Steel Products Co. ... 109
Great Lakes Carbon Corp. ... 6
Griffin Wellpoint Corporation ... 107
Gunite Concrete & Construction Co. ... 88

Harnischfeger Corporation ... 139
Hartford Fire Insurance Co. ... 64
Hartford Accident & Indemnity Co. ... 64
Hayward Company ... 76
Homestead Valve Mfg. Co. ... 86
Hyatt Bearings Div., G. M. C. ... 42

International Harvester Co. ... 4, 5
Irvington Form & Tank Corp. ... 114

Jaeger Machine Co. ... 61
Jenkins Bros. ... 69
Johns-Manville Corp. ... 77
Johnson Co., C. S. ... 79

Keasby & Mattison Co. ... 89
Koehring Co., The ... 79
Kwik-Mix Co. ... 79

La Crosse Trailer Corp. ... 55
La Plant-Choate Mfg. Co. ... 1
Layne & Bowler, Inc. ... 59
Lefax Co. ... 76
LeTourneau, Inc., R. G. ... 8, 9
Leupold & Stevens Instruments, Inc. ... 2
Lima-Hamilton Div., Baldwin-Lima-Hamilton Corp. ... 11
Ludwig, F. C. ... 74
Lufkin Rule Co. ... 80

Marion Power Shovel Co. ... 134
Master Vibrator Co. ... 101
McGraw-Hill Book Co. ... 83
Minneapolis-Moline ... 58
Moretrench Corp. ... 41
Morse-Starrett Products Co. ... 136
Mueller Co. ... 140

Nat'l Clay Pipe Mfgrs., Inc. ... 90

Parsons Co. ... 78, 79
Patent Scaffolding Co. ... 113
Phoenix Bridge Co. ... 88
Plasteel Products Co. ... 136

Raymond Concrete Pile Co. ... 3rd Cover
Remington Arms Co., Inc., Industrial Tool Div. ... 52, 53
Reynolds Metal Co., Inc. ... 99
Richmond Screw Anchor Co., Inc. ... 37
Robertson Co., H. H. ... 3
Rollway Bearing Co., Inc. ... 60

Sauerman Bros., Inc. ... 100
Schield Bantam Co. ... 72, 73
Schramm, Inc. ... 104
Sherman Products, Inc. ... 142
Sika Chemical Corp. ... 105
Smith Engineering Works ... 12, 13
Spencer, White & Prentis, Inc. ... 114
Sprague & Henwood, Inc. ... 103
Standard Steel Corp. ... 118
Syntron Co. ... 141

Timken-Detroit Axle Co. ... 81, 82
Timken Roller Bearing Co. ... 4th Cover
Trailer Village, Inc. ... 116
Truck Mixer Mfgrs. Bureau ... 88
Truscon Steel Company ... 10

Unit Crane & Shovel Corp. ... 76
U. S. Rubber Co. ... 63
Universal Concrete Pipe Co. ... 113

Washington Aluminum Co., Inc. ... 106
Wellman Engineering Co. ... 116
White Co., David ... 138
Whiteman Mfg. Co. ... 65

Yeomans Brothers Co. ... 110

Professional Services . . . 131, 132, 133

SEARCHLIGHT SECTION
(Classified Advertising)
H. E. HILTY, Manager

Employment
Positions Vacant ... 123, 124
Selling Opportunities Offered ... 124
Positions Wanted ... 125

Educational
Books ... 125
Schools ... 125

Business Opportunities
Offered ... 125

Notices
Proposals ... 121, 122, 123

Property
Wanted ... 125

Equipment
(Used or Surplus New)
For Rent ... 129
For Sale ... 125-131
Piling ... 130
Pipe ... 128
Rail ... 130

Wanted
Equipment ... 125
Miscellaneous ... 125

ENGINEERING NEWS-RECORD

D. S. ROBERTSON, *Adv. Sales Manager* — HOWARD T. OLSEN, *Assistant Manager*

J. G. JOHNSON, *Business Manager*

Sales Representatives: M. J. Storz and E. A. Callahan, Jr., 330 W. 42nd St., *New York;* F. G. Hudson, L. H. Hunt, W. G. Payne, 520 N. Michigan Ave., *Chicago;* R. E. Dorland, 68 Post St., *San Francisco;* A. B. Cozzens, 17th & Sansom Streets, *Philadelphia;* E. E. Duff, Jr., Hanna Bldg., *Cleveland;* B. F. Horn, Penobscot Bldg., *Detroit;* W. F. Donnell, Continental Bldg., *St. Louis;* H. L. Keeler, 1111 Wilshire Bldg., *Los Angeles;* R. C. Maultsby, Rhodes-Haverty Bldg., *Atlanta;* James Cash, First National Bank Bldg., *Dallas. Other Sales Offices:* 738-39 Oliver Bldg., *Pittsburgh;* 1427 Statler Bldg., *Boston;* Aldwych House, *London.*

Dam sought for Cumberland

The Board of Engineers for Rivers and Harbors has decided to press for one high, $145-million multi-purpose dam, instead of two smaller, previously-authorized navigation dams on the Cumberland River, near Paducah, Kentucky.

Its recommendation, in a report submitted to the Chief of Engineers, U. S. Army, represents a basic, important decision on the comprehensive development of the Cumberland River.

Physical features of the project—as recommended—are almost identical with those considered in a board hearing Jan. 14.

The Lower Cumberland proposal—combining navigation, flood control and hydroelectric power purposes—would substitute a dam 170 ft high, 30.5 mi above the mouth of the river, for two already authorized navigation dams of lesser height, located 32.2 and 87.6 miles from the mouth of the river.

• Pro and con—Many public officials and businessmen in the Cumberland Valley favor the project. It is opposed by utility and railroad interests. Divergent views were aired at the Jan. 14 meeting in Washington.

Those in favor of the project cited figures intended to show that $9,257,000 in tangible benefits would accrue to the region annually in the form of transportation savings ($3,114,000), flood control ($2,000,000) and electric power ($4,183,000). Against these benefits, they said the total annual cost of the dam, including full amortization, would be only $6,557,000.

• Want full development—On a more general level, those favoring the project argued that partial development of a river—for navigation only—would be wasteful.

Witnesses who opposed the project argued that the lake created by the proposed dam would flood thousands of acres of valuable farm land and would force the relocation of three small towns in Kentucky (Kuttawa, Cadiz and Eddyville).

They also asserted that the dam's hydroelectric facilities would cost far more than steam plants with equal power-producing capacity and that government development of waterways for river transportation constitutes an unfair subsidy for one branch of the transportation industry—barge lines.

These arguments were offered by a half-dozen farmers and businessmen in the immediate area of the proposed dam; by a representative of private power companies; and by a spokesman for the American Association of Railroads.

With the exception of Gregory R. Prince, the railroad spokesman, who was against both plans, those opposing the high dam urged the board to recommend two previously authorized dams, one to be located at Grand Rivers (also the site of the proposed multi-purpose dam) and the other upstream at Dover, Tenn. (See map).

• Make comparison—Combined cost of these two dams has been estimated at about $30 million. They would not provide flood control or produce power. They would be used solely as navigation aids.

Each of the smaller dams would have 110 x 800-ft locks. Their height has been estimated roughly at 60 to 80 ft. They would be of concrete gravity construction.

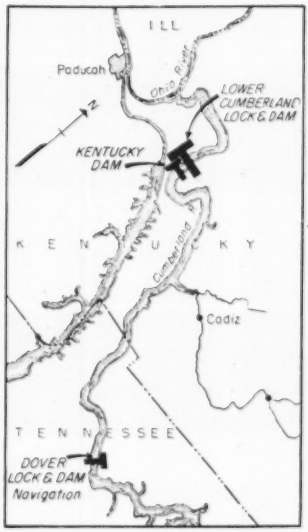
The proposed multi-purpose dam, 170 ft high, would be 7,500 ft long. Its power plant would have an installed capacity of 130,000 kw and would produce 551 million kwh annually.

The reservoir, 118 mi long, would have a capacity of 2,248,000 acre ft and would normally be operated at a level between El. 354 and 359 (above sea level). Size of the lock would be the same as for the two authorized navigation dams, 110 x 800 ft. The canal proposed at Grand Rivers would be 1¼ mi long, connecting the Tennessee and Cumberland Rivers.

• Would improve navigation—Time-saving advantages of the proposed plan have been stressed by navigation interests.

At the present time, there are seven navigation locks between Paducah, Kentucky, on the Ohio River, and Nashville, about 180 mi above the mouth of the Cumberland River.

Traffic that moves between these two river ports passes through these seven locks. It takes a minimum of two hours for a towboat pulling three barges to get through a single lock (a tow with three barges is considered an average hookup). Thus, lockage time between Paducah and Nashville is at least 28 hours on a two-day trip.



With a high, multi-purpose dam at Grand Rivers, the seven lockages would be reduced to two. Lockage time on a round trip would be cut from 28 hours to eight hours. In addition, the canal between the Tennessee and Cumberland rivers would lop hours and miles off travel requirements between ports on the two rivers.

Railroad interests oppose both plans. Cutting river shipping time between Paducah and Nashville would put barge operators in a much more favorable competitive position. Even the low navigation dams already authorized would permit removal of some existing locks and cut down river shipping time, hence the railroad opposition.

• Utility opposition—Private power interests opposed the high dam because power produced there would go directly into the Tennessee Valley Authority distribution system to run the big atomic and aluminum plants.

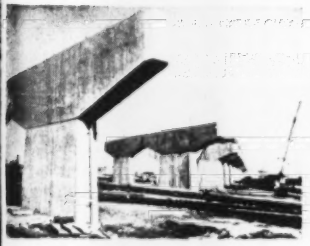
Proponents of the multi-purpose dam maintain that if the high dam is not built, the comprehensive development plan for the Cumberland River must be shelved for the present. They say that if the dam is approved, the plan goes forward. This week, the chances seem good that it would be approved.

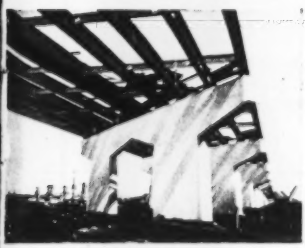
GENERAL CONTRACTOR:
Slack Construction Corp.
New York, N. Y.

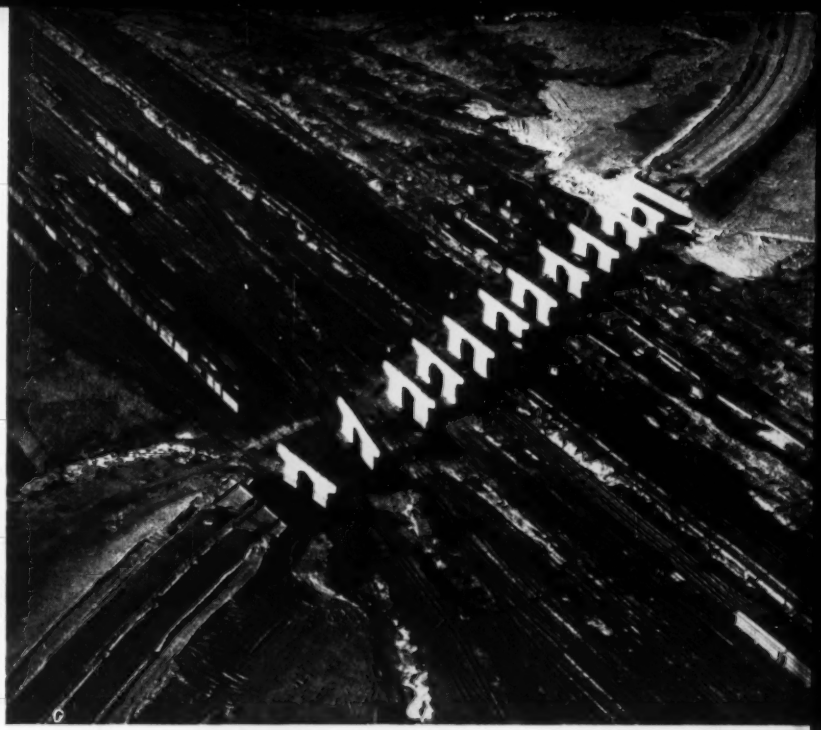
STEEL CONTRACTOR:
American Bridge Co.
Ambridge, Pa.

ENGINEERS:
Howard, Needles,
Tammen & Bergendoff
New York, N. Y.

ARCHITECTS:
Alfred Fellheimer
Steward Wagner
New York, N. Y.







Raymond SALUTES

THE NEW JERSEY TURNPIKE

RAYMOND IS PROUD to have played a vital part in the creation of this fabulous new cross-state highway. The railroad overpass near Ridgefield, N. J., is just one of several projects on the Turnpike that rest on Raymond Piles. 778 Raymond Pipe Step-Taper Piles driven for 11 piers and 2 abutments, with an average length of 120′ and a total footage of 93,283′ were used on this overpass—just another example of the part Raymond is playing in building tomorrow's world today.

SCOPE OF RAYMOND'S ACTIVITIES
Soil Investigations, Pile and Caisson Foundations, Underpinning, Harbor and River Improvements and Cement-Mortar Lining of Pipelines by the Centriline and Tate Processes.

Raymond
CONCRETE PILE CO.

BRANCH OFFICES in the principal cities of the United States and Central and South America.

140 CEDAR STREET • NEW YORK 6, N. Y.

Here's where it pays to use carbide insert bits:

Under drilling conditions like those at the right, it's a safe bet that carbide insert bits can cut your costs, boost your production. Carbide insert bits drill longer without sharpening; bit reconditioning is simplified and drillers spend less time changing bits. Since carbide insert bits hold their gauge longer, you can bottom your hole in the desired size without having to remove excess rock to allow for tapered hole.

1. Extremely deep holes
2. Very hard ground where a steel bit will not drill out a full increment of drill steel.
3. Small blast holes
4. Constant gauge holes
5. Extremely abrasive ground
6. Block hole drilling in hard ground
7. Locations where transportation and reconditioning of bits are problems.

Here's why it pays to use TIMKEN® carbide insert bits

If carbide insert bits are your best bet, your best bit is Timken®!

Timken carbide insert bits are removable—screw on or off the drill steel. As a result, drillers have sharp bits at all times without changing the entire steel.

The bit body of Timken carbide insert bits is made of electric furnace Timken alloy steel. And a special shoulder union developed by the Timken Company protects threads from the drilling impact.

Timken carbide insert bits are available in six series. The Timken Rock Bit Engineering Service will help you select the right one for your job. The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

"SC" SERIES (⅝" thread) "EC" SERIES (⅞" thread) "MC" SERIES (1" thread) "MCA" SERIES (1" thread) "DC" SERIES (1⅜" thread) "DCA" SERIES (1⅜" thread)

TIMKEN ***REMOVABLE ROCK BITS***

TRADE-MARK REG. U. S. PAT. OFF.